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ABSTRACT

The national longitudinal study is intended to span a period of about eight years. Base year information was collected in 1972 while the sample members were high school seniors, and followup surveys were conducted in 1973, 1974, and 1976. The theme of the current symposium session is postsecondary education. Entry into postsecondary education is examined in terms of differences between subgroups defined by sex, race, socioeconomic status, and ability (J.P. Bailey, Jr. and E.F. Collins). Withdrawals from postsecondary education within two years of high school graduation are examined, with special attention given to motivational problems (S.S. Peng and W.B. Fetters). Transfer behavior is examined among and between two- and four-year institutions and by similar subgroupings (S.B. Corrallo and J.A. Davis). Finally, the impact of financial aid on entry and persistence is assessed, especially as it relates to socioeconomic status and student aspiration (S.B. Corrallo, J.A. Davis). (Editor/MSE)

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NATIONAL LONGITUDINAL STUDY of the High School Class of 1972

SYMPOSIUM: TRENDS IN POSTSECONDARY EDUCATION

J. P. Bailey, Jr.
Symposium Organizer

Papers presented at the
Annual Meeting
of the
American Educational Research Association
in
New York City

4-8 April 1977

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THE NATIONAL LONGITUDINAL STUDY: TRENDS IN POSTSECONDARY EDUCATION

SYMPOSIUM OVERVIEW

J. P. Bailey, Jr.
Research Triangle Institute

The National Longitudinal Study: Trends in Postsecondary Education

Symposium Overview

J. P. Bailey, Jr.

The National Longitudinal Study of the High School Class of 1972 (NLS) is monitored and partially funded by the National Center for Education Statistics in the Office of the Assistant Secretary for Education, U.S. Department of Health, Education, and Welfare. It is also supported by other agencies and offices within DHEW as well as other departments with interests in the long-range effects of educational policy.

The NLS is a long-term program that has been designed to determine what happens to young people after they leave high school by collecting data on their individual educational and vocational activities, plans, aspirations, and attitudes at various points in time. From these individual histories, one will be able to relate sets of prior experiences to personal and biographical characteristics. The ultimate purpose of NLS is to gain better insights into the development of students as they pass through the American educational system and to develop an understanding of the complexity of factors associated with individual educational and vocational outcomes. The NLS will do both by providing an ongoing and updated data base containing statistics on a large national sample of seniors as they move out of the high school system into the critical years of early adulthood. NLS can be viewed as one of the most recent in a family of longitudinal data bases which includes such venerable members as the 1960 TALENT study, the NORC 1961 college follow-up study, Astin's nationally representative ACE sample, Sewell's Wisconsin study, and the Parnes National Longitudinal Surveys.

The first full-scale NLS survey wa initiated in the spring of 1972. The planned sample design (Table 1) provided for selection of over 21,000 seniors from 1,200 high schools. However, contacts were initiated rather late in the school year, and consequently many schools could not participate. The resulting sample of about 19,000 seniors from over 1,000 public, private, and church-affiliated high schools yielded varying response rates for individual base-year data collection forms. Each participating student was expected to complete a Student Questionnaire and to take a 69-minute test battery. Survey administrators were asked to fill out a School Record Information Form for

Table 1

NATIONAL LONGITUDINAL STUDY OF THE HIGH SCHOOL CLASS OF 1972
SAMPLE AND DATA SUMMARY*

Sample Development		
Planned Primary Sample		1,200 schools; 21,600 seniors
Base Year Participation (Spring 1972)		
Primary Schools	948	
Backup Schools	122	
Seniors	19,136	
First Follow-Up Participation (Fall 1973)		
Added Primary Schools	205	
Added Backup Schools	27	
Added Augmentation Schools	16	
Added Base Year Seniors	4,315	
Total Sample		1,318 schools; 23,451 seniors
First Follow-Up Survey (Fall 1973)		
Mailout to Sample Members	22,634	
Respondents	21,350	
By Mail	14,732	(65 percent of mailout)
by Interview	6,618	
Second Follow-Up Survey (Fall 1974)		
Mailout to Sample Members	22,364	
Respondents	20,872	
By Mail	15,197	(68 percent of mailout)
By Interview	5,844	
Third Follow-Up Survey (Fall 1976)		
Mailout to Sample Members	21,807	
Respondents		
By Mail (to date)	16,180	(74 percent of mailout)

*For detailed breakdowns, see Data File Users Manual, December 1976.

each student as well as a School Questionnaire with information about the school's programs, resources, and grading system. In addition, school counselors were asked to complete a special questionnaire with data about their training and experience. The base-year survey's key form, the Student Questionnaire, was completed by 16,683 seniors.

The first follow-up survey began in October 1973 (about 15 to 16 months after graduation) and ended in April 1974. Added to the base year sample were about 4,300 seniors from the class of 1972 in about 250 schools that had been unable to participate earlier, to bring the total NLS sample to over 23,000 potential respondents.

The major mode of follow-up data collection for the NLS surveys is by mail, using a self-administered questionnaire. All mail nonrespondents, however, are interviewed by RTI's nationwide field staff. For the first follow-up, up, there were 21,350 sample members who completed the questionnaire--69 perent by mail and 31 percent by personal interview. Of the 16,683 seniors who completed the Student Questionnaire in 1972, 15,635 also completed a First Follow-up Questionnaire--a sample retention rate of 93.7 percent.

The second follow-up survey began in October 1974 when forms were sent to 22,364 potential respondents. Nearly 21,000 of them completed a Second Follow-up Questionnaire, 72 percent by mail and 28 percent by personal interview. Of the 21,350 who completed a first follow-up questionnaire, 20,194 (94.6 percent) also participated in the second follow-up survey.

The third follow-up survey began in October 1976. Currently completing the data collection phase are over 175 RTI interviewers who are talking with sample members who did not respond by mail. Out of 21,807 questionnaires sent out last October, 16,180 (74 percent) have been returned by mail. We expect to continue our high sample retention rate.

NLS data tapes have been available to federal agencies and individual researchers since about January 1975, and many studies are underway using these data. We are presenting here today some of the work which we at RTI have done with data on postsecondary educational activities (entry, withdrawal, transfer) and data on effects of financial aid.

ENTRY INTO POSTSECONDARY EDUCATION

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Entry into Postsecondary Education

I. INTRODUCTION

An examination of entrance into postsecondary education is the prerequisite for a look at the withdrawal and transfer behavior among participants in postsecondary education, as well as any meaningful examination of the effects of financial aid on their persistence in continuing through to the award of another diploma or certificate. This paper is the first of four in this symposium series which deals with postsecondary education. It will describe some basic and some interesting aspects about those who enter two- and four-year colleges, it will not go far in explaining why they enter, although there will be some intriguing anomalies in the data pointed out which may indicate some cause and effect taking place.

The primary data source for this study is the National Longitudinal Study of the High School Class of 1972 (NLS), which is sponsored largely by the National Center for Education Statistics with additional financial support from several offices and bureaus of the U.S. Office of Education. The NLS is based on a national probability sample of high school seniors in 1972 from some 1,300 public, private, and church-affiliated schools. With the third follow-up completing its data collection phase this month, better than 90 percent--or about 20,000 sample members--have continued to respond since they were first contacted. In addition to baseline information (background, activities, academic programs, ability estimates), each respondent to each follow-up has added subsequent educational and occupational activities; plans, aspirations, and attitudes; and family and personal development milestones. The NLS data base is now being used for investigations into a wide range of young adult growth in America. Postsecondary education is but one such area.

It should be noted at the outset that some of the data presented in this paper may be familiar to some readers. Educational Researcher (Peng, 1977) carried a comparative examination of NLS versus Project TALENT regarding differing postsecondary entrance rates between 1961 and 1972, and Peng reported some substantial sex, race, and ability changes across the decade. This paper will build on that foundation by pointing out some important current differences among the several demographic subgroups of particular interest. Socioeconomic status, sex, and race reflect directly on attainment of equality of

opportunity in education; and the high school program a student completes appears to be a pervasive influence throughout his postsecondary education experience, with particular relevance at entry.

II. WHO ENTERS COLLEGE?

A. Overall

About 30 percent of American high school seniors in 1972 entered four-year colleges and universities in the fall following graduation from high school. Even considering late entry, i.e., delay by one year perhaps while deciding to stop out a while, the percentage is increased to just over 31 percent--less than one-third of our high school graduates (see Table 1). The figures are improved somewhat when one adds in the growing effects of the widespread two-year and community college development programs, where an additional 17 percent brings the total percentage of students in college by about 16 months after graduation to about 49 percent. Not shown in Table 1 is an additional 8 percent who are in or who have completed vocational or technical programs in a variety of settings by that time.

B. High School Program Effects

The clear and largely self-fulfilling tracking system which leads many young adults to postsecondary education in the college environment is the high school curriculum in which they participated. It is easy to predict that a high proportion of academic program students go on--and they do, as

Table 1

FALL 1973 COLLEGE ATTENDANCE: PERCENTAGES BY TYPE OF SCHOOL AND ENTRY YEAR

	Type of College		
	Four-Year	Two-Year	Total
Fall 1972	29.4	14.6	44.0
Fall 1973	2.2	2.4	4.6
Total	31.6	17.0	48.6

Table 2 clearly indicates. Not shown there, but evident from much other data (Tabler, 1976), is the fact that the same relative percentages across the three high school programs occur within three ethnic groups (black, white, Hispanic) as well as for the two sexes shown.

Table 2

FALL 1972 COLLEGE ATTENDANCE: PERCENTAGES BY SEX AND HIGH SCHOOL PROGRAM

	High School Program		
	General	Academic	Vocational
Male	39.1	78.5	27.8
Female	42.4	80.9	28.4
Average	40.8	79.7	28.1

There are some weaknesses in these data relating to the determination of the actual high school program which the respondent should be considered as having completed. This variable is based primarily on students' self-report during the base year survey, with two secondary data sources if the self-report was missing. These sources are retrospective self-reports given in the fall of 1973, and reports by a survey administrator based on an examination of school records. Fetters (1975) reported from ETS materials percent agreements of 78, 60, and 66, respectively, for the academic, general, and vocational data between self-report and survey administrator determination. Thus, unless an investigator develops his own rubric for high school curriculum determination from other data on the NLS file (as at least one investigator is doing), these kinds of effects may justifiably be regarded with some caution unless, of course, some differences appear overwhelming. Table 2 presents such a case for the high school academic program participants. While the percentages shown may have some error of misclassification associated with them, it will be interesting later to examine the withdrawal and persistence rates of each of these groups.

C. Socioeconomic Status (SES) Differences

SES is another important explanation as to differences which determine who goes to college, although recent work in progress at RTI with the NLS data

is beginning to show somewhat of a leveling effect as governmental programs (e.g., BEOG) reach their lower SES targets. The SES measure used for the current analyses, and included as a composite variable on the NLS data tapes, is derived from a combination of five factors (father's education, mother's education, parental income, father's occupation, and a household items index) transformed into a continuous score which, in turn, was assigned to a quartile on the basis of weighted composite score frequencies.

Noting Table 3, a substantial difference can be seen between low and high SES two- and four-year college attendance, especially four year. However, the egalitarian role of the two-year college programs, a strong force in many parts of the nation, is clearly seen by the higher medium SES (middle two quartiles) percentage at that level. Other than that hint of a more equitable distribution of entrance characteristics at the two-year college, the status is as expected: high SES people are clearly getting into college at a higher rate.

Table 3

FALL 1973 COLLEGE ATTENDANCE: PERCENTAGES BY SES AND TYPE OF SCHOOL

	SES			
Type of College	Low	Medium*	High	All Levels
Four-Year	15.7	26.1	57.8	31.6
Two-Year	11.2	21.2	19.6	17.0
Total	26.9	47.3	77.4	48.6

*Includes middle two quartiles.

D. Sex and Race Characteristics

Total entrance rates into colleges by fall 1973 also differed according to sex and race. Table 4 shows that males had a slightly higher entrance rate (about 51 percent) than females (about 46 percent). This male-female difference holds equally well at the four-year level (33 versus 30 percent) and at the two-year level (18 versus 16 percent). About 41 percent blacks entered college, and whites had the highest entrance rates for four-year colleges while Hispanics had the highest for the two-year colleges.

Table 4

FALL 1973 COLLEGE ATTENDANCE: PERCENTAGES BY SEX AND RACE

Type of College	Male				Female			
	Black	Hispanic	White	All Males*	Black	Hispanic	White	All Females*
Four-Year	26.8	18.5	34.7	32.9	29.7	16.0	30.9	30.1
Two-Year	13.3	26.5	18.1	17.9	12.1	21.2	16.0	15.6
Total	40.1	45.0	52.8	50.8	41.8	37.2	46.9	45.7

*Includes persons not classified by black, Hispanic, or white.

However, there is an interesting relationship when you control for race and sex: there is a smaller percentage of black males than females in four-year institutions, and this particular anomaly is not offset by the expected (in the light of the general finding above that more males than females go to college) male lead at the two-year level. Thus, among blacks there is a small overall female advantage (42 as against 40 percent) in college attendance. This could be the synergistic effect of equal opportunity and affirmative action working hand-in-hand.

E. Sex, Ability, and SES Interactions

Yet another way to look at the college-entering population of young adults is to control for more factors simultaneously and examine the interactions. Tables 5 and 6 are concerned with the four-year and two-year entrants, respectively.

The ability composite which appears in the NLS data file and was used in these analyses is composed of four base-year tests: vocabulary, reading, letter groups, and mathematics. The factor analysis of these measures revealed a general academic factor which suggested a weighted linear composite classified into quartiles, much like the SES composite.

Except for some minor anomalies within the low ability quartile, both men and women generally show the expected overall higher percentages of college attendance at higher SES and ability levels. Indeed, examining the principal diagonals of Table 5 in particular, the expected increased attendance rates with both ability and SES are evident, although men show a slight advantage at the intersection of the third level of each factor (34 as against

Table 5

FALL 1972 FOUR-YEAR COLLEGE ATTENDANCE: PERCENTAGES BY SEX, ABILITY, AND SES

	Ability Quartiles	SES Quartiles Low 1	2	3	High 4	Total*
Men	Total†	20	23	29	41	29
	1 Low	7	6	9	14	9
	2	13	14	15	25	17
	3	22	26	34	52	34
	4 High	38	46	58	74	54
Women	Total†	20	21	27	44	28
	1 Low	7	4	10	18	10
	2	11	12	15	31	17
	3	18	27	29	50	31
	4 High	44	41	53	76	54

*The figures are balanced by SES.

†The figures are balanced by ability.

29 percent). Several points to ponder: In spite of the prior-mentioned stress on SES, note that the high ability/low SES group does well (38 percent of men and 44 percent of women), the low ability/high SES group does not (14 percent of men and 18 percent of women). Ability still seems to count, which it should. Also note two aspects of the high ability women: (1) at both the lowest and highest quartiles of SES they do better than high ability men; and (2) only at moderate levels of SES are these women surpassed by men in college attendance.

Two-year college attendance patterns by sex, ability, and SES are quite different. Examining the principal diagonals of Table 6, one can see the drop-off among both men and women at the higher ability and SES levels. Except at the lowest ability level, there is a curvilinear relationship between attendance and SES, as more of the moderate SES (levels 2 and 3) than either low (1) or high (4) background individuals are seen to attend this level of school. The low ability/high SES percentages being relatively high for both sexes suggests again the strong effect of SES (see Table 3).

Table 6

FALL 1972 TWO-YEAR COLLEGE ATTENDANCE: PERCENTAGES BY SEX, ABILITY, AND SES

	Ability Quartiles	SES Quartiles Low 1	2	3	High 4	Total*
Men	Total†	12	18	19	15	16
	1 Low	9	10	11	16	12
	2	9	17	20	16	16
	3	14	21	23	17	19
	4 High	15	24	23	11	18
Women	Total†	13	17	17	14	15
	1 Low	7	9	11	20	12
	2	11	13	14	13	13
	3	10	19	21	15	16
	4 High	22	25	22	9	20

*The figures are balanced by SES.

†The figures are balanced by ability.

Another interesting point of contrast to the four-year figures: Among both men and women at the two-year level, high ability/low SES (15 percent men and 22 percent women) do just about as well as low ability/high SES (16 percent mean and 20 percent women). But, just as with the four-year college students, women have the edge at both these extremes.

F. Race and Ability

Higher percentages of high ability blacks than of high ability whites or Hispanics entered four-year colleges immediately after high school, as can be seen in Table 7. Note also that for two-year institutions, a higher percentage of Hispanics at all ability levels entered this postsecondary path.

After having seen that comfortably high percentages of blacks entered postsecondary education, and that this is particularly evident at the higher ability levels, it might be fairly asked how they are distributed among colleges and universities. Do they differ, for example, from whites in the potential "quality" of their education?

One measure used to assess the characteristics of postsecondary educational institutions is Astin's (1971) college selectivity index, which has eight levels based upon average scores (SAT, ACT) of entering students and which ranges from 1 at the lowest to 7 at the highest, with a 0 (unknown) category indicating no direct level of selectivity available. According to Astin, this last level tends to average around 1 or 2. For purposes of this analysis, the eight levels have been collapsed to the three shown in Table 8, and for simplicity the ability composite has also been collapsed to low, medium (middle two quartiles), and high.

Examination of Table 8 reveals that regardless of ability level, blacks tend to congregate in the lower selectivity level four-year schools, and as compared to whites the difference is striking: nearly 71 percent of blacks who are in four-year colleges are in "low-level" colleges, as compared to 49 percent of whites. There is a bright side, however, as high ability blacks appear to do considerably better than high ability whites in entering the most selective schools. But in spite of that, more than half of high ability blacks (52 percent) are not so fortunate.

The findings of Table 8 are presented graphically in Figure 1. Looking at Figure 1a, one can see that among whites in four-year colleges, the schools having lower selectivity levels have the higher percentages of students regardless of ability level. The three lines never cross each other. Attendance at schools having the lowest and highest academic levels is related to student ability in somewhat an expected manner. However, percentage attendance at midlevel schools appears to have little relationship to student ability. It is interesting to note that a relatively high percentage of high ability white students attend schools in the lowest academic level (43 percent); however, extremely few low ability white students attend schools in the highest academic levels.

Blacks in four-year schools (Figure 1b) exhibit some of the same general tendencies, with schools having lower selectivity levels showing an even higher percentage of attendance than whites at all levels of ability. With blacks, the attendance at schools of lowest and highest academic levels (especially the highest selectivity schools) exhibits an even stronger relationship to ability than is the case with white students. Another interesting observation in Figure 1b is the sharp ascent of the high selectivity schools attracting blacks of high ability versus medium ability. Among black and

Table 7

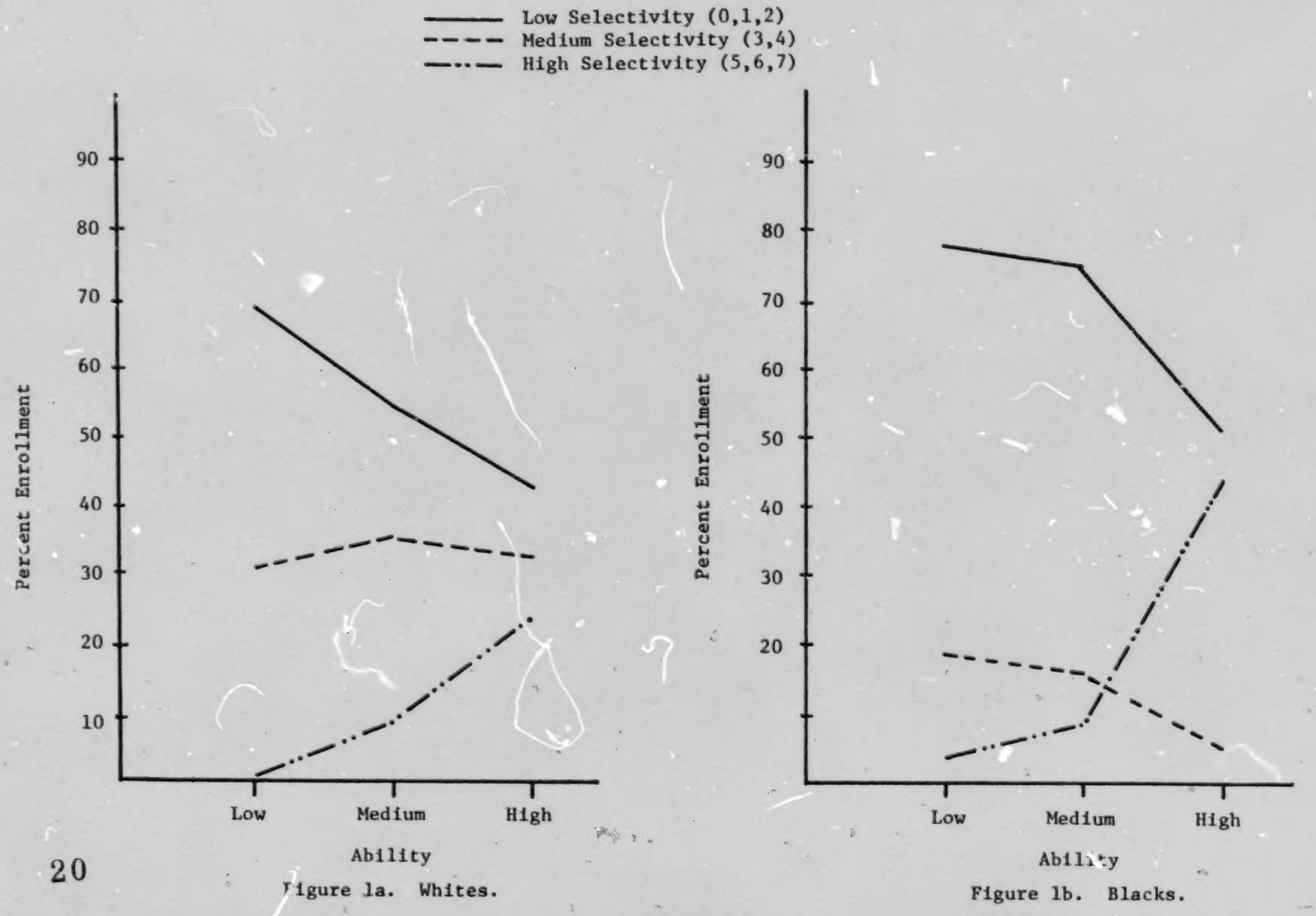
FALL 1972 POSTSECONDARY EDUCATIONAL ATTENDANCE: PERCENTAGES BY RACE AND ABILITY

	Ability Quartiles											
	Black				White				Hispanic			
Type of College	Low 1	2	3	High 4	Low 1	2	3	High 4	Low 1	2	3	High 4
Four-Year	15.5	42.2	54.7	73.8	6.4	15.0	33.7	61.3	9.6	20.2	33.8	52.1
Two-Year	10.1	11.3	10.5	4.6	10.7	17.4	18.9	13.2	19.4	30.2	26.4	26.3
Total	25.6	53.5	65.2	78.4	17.1	32.4	52.6	74.5	29.0	50.4	60.2	58.4

Table 8

FALL 1972 FOUR-YEAR COLLEGE ATTENDANCE: PERCENTAGES BY RACE, ABILITY, AND INSTITUTIONAL SELECTIVITY

	Ability							
	Black				White			
Selectivity Levels	Low	Medium	High	All Levels	Low	Medium	High	All Levels
0,1,2	77.5	75.0	51.7	70.9	69.0	55.3	43.5	49.2
3,4	18.9	16.0	5.2	17.3	30.7	36.1	32.9	33.5
5,6,7	3.6	9.0	43.1	11.8	0.3	8.6	23.6	17.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0



18

20

Figure 1a. Whites.

Figure 1b. Blacks.

21

Figure 1. Fall 1972 Four-Year College Attendance: Percentages by Race, Ability, and Institutional Selectivity.

white high ability four-year college students, the same percentage of blacks attend high selectivity schools as whites attend low selectivity institutions--43 percent.

III. SUMMARY AND DISCUSSION

We have seen that almost one-third of high school seniors enter four-year colleges within two years of graduation, and nearly half are in either four- or two-year institutions by that time. Socioeconomic status is a strong influence; and while medium SES individuals, as against high SES, seem to predominate at the two-year level, low ability/high SES persons stand out somewhat at this level of schooling. High school curriculum has its expected effect. More men than women seem to get to college, except that black women seem to be coming along rather well as compared to men of any race.

The four-year college seems to be characterized by higher SES and ability students, whereas the two-year institution has more moderate SES and ability students. There is far less variability at the two-year level on SES and ability: high ability/low SES persons do just about as well in entering these institutions as low ability/high SES persons. But at the four-year level, in addition to more overall variability among students, women have the edge at both high and low ability levels. Ability level is important, too, with respect to race, as blacks have higher entrance rates to four-year colleges than whites at each ability level, while Hispanics seem to predominate at the two-year institutions. But there is an indication that this high four-year entrance rate may have a bias, as the blacks seem to pile up in lower selectivity level postsecondary institutions as compared to whites.

It might be fairly concluded that whereas the American system of postsecondary education is well on the road toward equality of postsecondary educational opportunity in terms of sheer numbers and percentages of minorities entering school, we may have a long way to go in achieving a better match between minority individuals and the schools they attend.

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Disclaimer

The opinions expressed in this paper do not necessarily reflect the position or policy of NCES, and no official endorsement by NCES should be inferred.

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COLLEGE STUDENT WITHDRAWAL: A MOTIVATIONAL PROBLEM

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Abstract

This study investigated the process of withdrawal from four-year and two-year institutions of higher education. Data were drawn from the base year and the first and second follow-ups of the National Longitudinal Study of the High School Class of 1972. Results indicated that (1) women students were more likely to withdraw only in two-year colleges; (2) white students were more likely than black students to withdraw when other variables were controlled; (3) high school program, college grades, and educational aspiration account for most variance of withdrawal behavior; and (4) financial aid did not have significant effect on college persistence. The data showed that withdrawal was more a motivational than a socioeconomic problem.

College Student Withdrawal: A Motivational Problem

I. INTRODUCTION

Withdrawal from college is an important issue in higher education for varying reasons: For one thing, withdrawal is generally considered a painful process for many students because of possible vocational and/or personal setbacks that may result from impeded career development and the futile expenditure of time and effort, even though withdrawal can be a positive step for some students and their parents (see Sanford, 1956; Summerskill, 1962). For another thing, withdrawal presents problems to school administrators because of misallocation of limited educational resources. Consequently, students, parents, counselors, and educational decisionmakers want to know who drops out of college and why. The resultant information may lead to more effective counseling in assisting students to select a college and field of study in which they are likely to complete their education. The information may also assist administrators in formulating recruitment and admission policies in allocating financial aid to enhance the probability that students will complete their studies. This is particularly important given the decline in birth rates in the last 15 years (U.S. Bureau of the Census, 1964 and 1973) because the consequent decline in the numbers of college entrants may cause the financial survival of many colleges to depend in part on reducing the number of withdrawals.

The issue has certainly not been neglected in the past. Numerous studies have been conducted; however, most of the studies are restricted from broad generalizations because of the ambiguous definition of dropouts and the lack of a representative sample of institutions for making national estimates (see Spady, 1970; Tinto, 1975). Many studies fail to distinguish academic suspension (i.e., dropout resulting from academic failure) from nonacademic withdrawal, or permanent dropouts from persons whose leaving may be temporary (i.e., stopouts) or may lead to a transfer to other institutions of higher education (Tinto, 1975). The failure to make such distinctions in past

research has resulted in contradictory findings and misleading implications. Failure to separate permanent dropouts from stopouts or transfers has resulted in substantial overestimation of the extent of withdrawals in higher education, as well as in an inability to identify populations requiring specific forms of assistance (Spady, 1970).

The lack of a representative sample is another problem frequently found in the previous studies. Many studies are limited to a single institution or institutions within a localized region, and thus no nationwide implications can be drawn. There are a few published national studies (e.g., Iffert, 1958; Trent & Medsker, 1968; Astin, 1972); however, they also suffer from such defects as nonrepresentative sampling of institutions.

All these limitations of previous research imply that well-defined withdrawals and data involving representative institutions are needed to provide a deeper understanding of the withdrawal phenomenon. In addition, recent socioeconomic developments such as the women's movement and a tight labor market for college graduates may have changed the value of college education (Freeman & Holloman, 1975), and this may have had an impact on college entrance and consequently persistence. It is, therefore, the primary purpose of this study to more fully examine the phenomenon of college withdrawal with a set of recent and comprehensive longitudinal data involving a representative sample of college students in the United States. While many questions relating to college withdrawal can be asked, this study focuses on the following: What variables are associated with college withdrawal and how do these variables operate in the withdrawal process?

II. METHOD

A. The Data Base

The data used in this study were drawn from the base-year and the first and second follow-up data of the National Longitudinal Study of the High School Class of 1972 (NLS). Educational and work experiences as well as plans, aspirations, attitudes, and personal background characteristics were measured over three points in time on a sample of over 22,000 high school seniors in the class of 1972. The base-year data were collected in the spring of 1972. The first follow-up data were collected in the fall and

winter of 1973-74, and the second follow-up data were collected in the fall and winter of 1974-75. A detailed description of the sample, instruments, and data collection procedures can be found in the Base Year, First and Second Follow-Up Data File Users Manual (Levinsohn, Lewis, Riccobono, & Moore, 1976).

During the first follow-up survey, sample members were asked to indicate whether or not they enrolled in a college by October 1972, and if so, in what type of program. Those members who reported attendance in any academic program (generally leading to a Bachelor's degree) in a two-year or four-year institution by October 1972 were the primary focus of the analyses. Students enrolled in vocational or technical programs were not included in this study because those vocational-technical students had different educational goal orientations and academic preparation, and thus their inclusion in the study would yield misleading results. In addition, since most previous studies of college attrition were generally concerned with academic students, the inclusion of vocational-technical students would complicate meaningful comparisons between present and previous findings.

College-going status of those students who enrolled in an academic program by October 1972 were re-examined in October 1973 and 1974. Students who continued an academic program over the two years in either the same or different institutions were classified as persisters. Students who withdrew from an academic program, either leaving the school or changing to a vocational/technical program by October 1973 or by October 1974 were classified as withdrawals. In the case of two-year colleges, withdrawals included those students who left school by October 1973 or 1974 without completion, those students who transferred from an academic to a vocational-technical program by October 1973 or 1974, and those students who completed a two-year college program but did not continue in a four-year college for a college degree. Transfers from one academic to another academic program, either in two-year or four-year colleges, were not classified as withdrawals because this study was concerned with withdrawal process from college as a whole and not from any particular institution.

Some 4,538 students from four-year institutions and 1,378 students from two-year colleges were identified for this study. Those students were enrolled in over 1,800 institutions by October 1972. It should be noted that these students included only blacks and whites; members of other minority

members were not retained in the study because the sample sizes of those minority groups were too small for reliable estimates, and their inclusion may complicate interpretations of the data.

B. Conceptualization and Variable Specifications

College withdrawal, like many other educational problems, can be best understood within the framework of a model in which varying background characteristics, personal attributes, and environmental influences interact to affect withdrawal behavior. A critical element in this modeling, however, is the selection of variables. Decisions were generally guided by findings of previous studies, theoretical reasoning, and the availability of data. The basic model to be employed in this study was that withdrawal behavior is a function of additive main effects of student biosocial background, high school experience or preparation, educational aspiration, financial support, and college performance. These variables were typically considered important in college withdrawal (see Astin, 1975; Eckland, 1964; Tinto, 1975).

The model is presented schematically in Figure 1. The ordering of the variables was dictated by some implied theory of the causal structure that linked one variable with another, or by the time frame in which these variables were measured or, if retrospective, to which they referred. The longitudinal nature of the data base was a unique feature of study because the temporal sequence of varibles allowed a more defensible explanation of process variables that affect withdrawal than any ex post facto approach.

The measurement of the selected variables is described as follows:

1. Socioeconomic Status (SES): SES was based upon a composite of father's education, mother's education, parental income, father's occupation, and a household items index. Factor analysis revealed a common factor with approximately equal loadings for each of the five components. Missing components were imputed as the mean of the subpopulation of which the respondent was a member, defined according to cross-classifications of race, high school program, and aptitude. The available standardized components, both imputed and nonimputed, were averaged to form an SES when at least two nonimputed components were available. A high score indicates high SES.
2. Sex: female = 1; male = 0

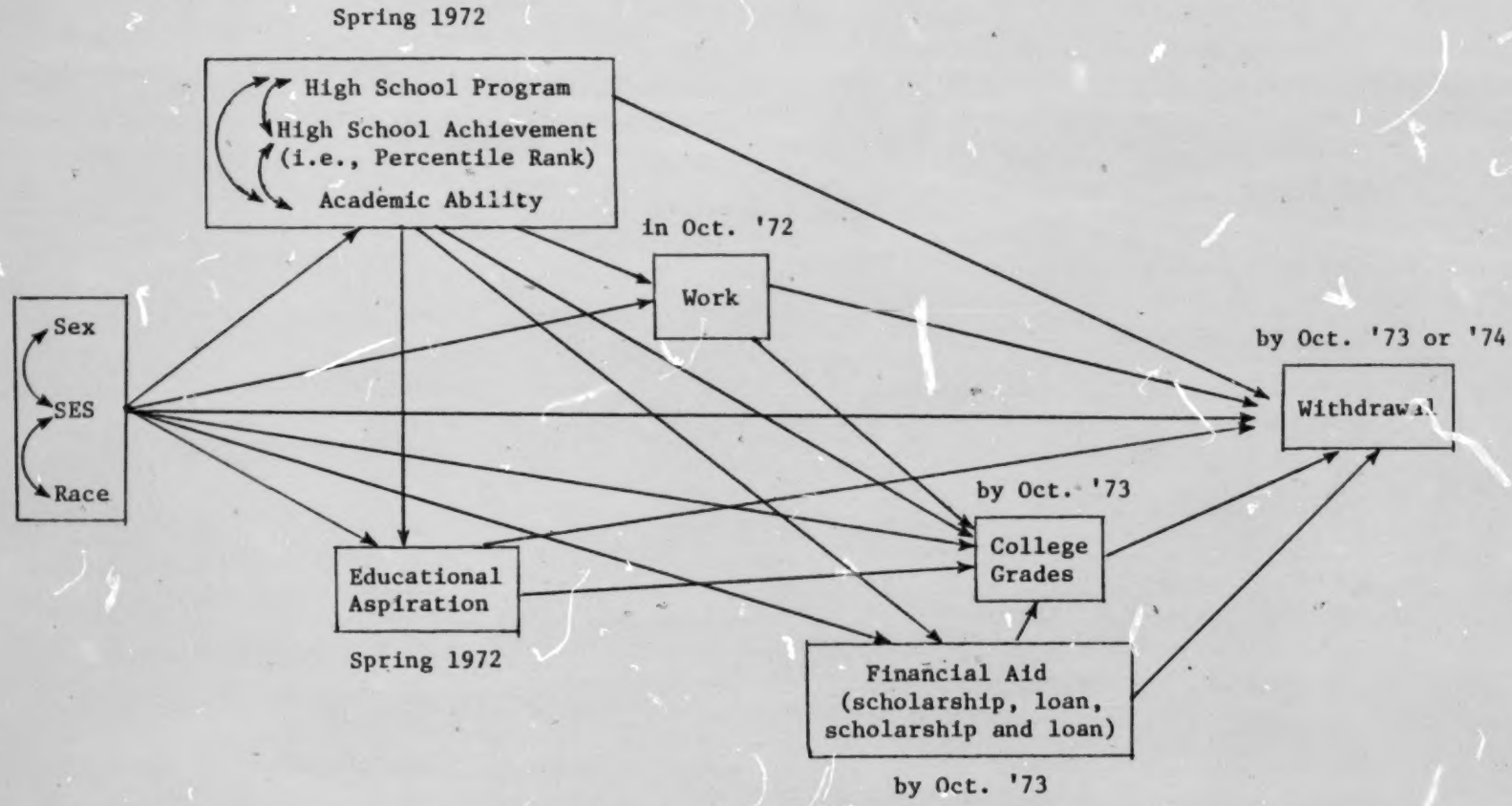

Figure 1. A Model of College Withdrawal.

3. Race: white = 1; black = 0.
4. High School Curriculum: Based upon students' school record information, students in college preparatory (academic) programs were assigned a value of 1, and those students in general, vocational, or technical programs were assigned a value of 0.
5. High School Achievement: This was measured by students' percentile rank as obtained from the school record information.
6. Academic Ability: The ability measure was a composite score of four tests: Vocabulary, Reading, Letter Groups, and Mathematics. A factor analysis revealed a general academic ability factor that was represented by an equally weighted linear composite of these four standardized tests.
7. Educational Aspiration: This variable measured the educational level one planned to have during one's senior year in high school. It was scored as follows: high school or less = 1; some vocational studies beyond high school = 2; two-year college = 3; four-year college or graduate school = 4.
8. Work in October 1972: Full-time work = 3, part-time work = 2, and not working = 1.
9. Scholarship Recipient: Students receiving any of the following scholarship programs or benefits were assigned a value of 1; otherwise, a value of 0:
   a. Basic Educational Opportunity Grant Program;
   b. Supplementary Educational Opportunity Grant Program;
   c. College scholarship or grant from college funds;
   d. ROTC scholarship or stipend;
   e. Nursing Scholarship Program;
   f. Health Professions Scholarship Program;
   g. State scholarships;
   h. Other scholarships;
   i. Law Enforcement Educational Program.
   j. Veterans Administration War Orphans of Survivors Benefits Programs;
   k. Veterans Administration direct benefits (GI Bill Compensation or pension);
   l. Vocational Rehabilitation Program benefits;

m. Social Security benefits (for students aged 18-22 who are children of retired, disabled, or deceased parents).

10. Loan Recipients: Students receiving any of the following loan programs were assigned a value of 1; otherwise, a value of 0:
    a. Federal Guaranteed Student Loan Programs;
    b. State Loan Program;
    c. Regular bank loan;
    d. National Defense (Direct) Student Loan Program;
    e. Health Professions Student Loan Program;
    f. Nursing Student Loan Program.
11. College Achievement: This was measured by student-reported college grade point average by October 1972. They were coded as follows: Mostly A = 8; about half A and half B = 7; mostly B = 6; about half B and half C = 5; mostly C = 5; about half C and half D = 3; mostly D = 2; mostly below D = 1.

C. Analysis Strategy

Students in four-year and two-year institutions were separately examined because previous research showed that different types of students attend these institutions. The two-year colleges tend to attract students of lower ability (American Council on Education, 1970) and lower socioeconomic status (U.S. Department of Commerce, 1972). In addition, previous studies have found that students who enter a two-year college are much more likely to withdraw than are students who enter four-year colleges or universities (National Commission on the Financing of Postsecondary Education, 1973). The institutional withdrawal rate itself may be a factor in dropping out, since the atmosphere is different in colleges where the majority will receive a degree as contrasted to colleges in which only a small percentage will graduate (Summerskill, 1962). Consequently, student withdrawals in four-year and two-year colleges were examined separately.

The statistical technique used in this study is basically multiple regression analysis (see Tatsuoka, 1971; Finn, 1974). The major limitation of this technique is that it does not easily allow for the study of interaction effects. However, it has been found that there are substantial interaction effects of the selected predictors on withdrawal behavior (Peng, Ashburn, and Dunteman, 1976). Curvilinear relationships between the selected predictors

and withdrawal behavior also were not found. College withdrawal can thus be viewed as a simple function of the additive main effects of many individual variables.

III. RESULTS

The means and standard deviations of the predictor variables for persisters and withdrawals separated by the type of college are presented in Table 1. Examination of these statistics revealed that four-year college persisters differed from withdrawals in most of the variables except for sex and loan recipient. Persisters had higher SES, aspiration, ability, and achievement than withdrawals. Also, more persisters took an academic high school program and fewer worked in October 1972 than withdrawals. Similarly, persisters from two-year colleges had higher SES, ability, academic qualification, or preparation than withdrawals. Examination of these statistics also revealed that four-year and two-year college students were quite different in their backgrounds. Even the persisters from two-year colleges, on the average, had lower SES, aspiration, percentile rank, and academic ability than withdrawals from the four-year college. This supported the earlier argument that two-year and four-year college students should be separated in the analyses.

Withdrawal rates for college students over two years may be obtained from Table 1. Based upon the sample sizes for persisters and withdrawals, it was estimated that about 34 percent of four-year college students withdraw within two years after matriculation. The withdrawal rate was higher for the two-year college academic students; about 60 percent withdrew in the first two years after matriculation. It should be remembered that the samples did not include other minority members such as Hispanics, American Indians, and American Orientals. The overall withdrawal rates could be higher than those estimated in this study since Hispanics and American Indians tend to have a higher withdrawal rate than whites (e.g., Astin, 1975).

Table 2 presents a simple correlation coefficients among variables. The upper triangular matrix is for the four-year college students, and the lower triangular matrix is for the two-year college students. The correlations between withdrawal and predictor variables further describes the existence

Table 1

MEANS AND STANDARD DEVIATIONS FOR PERSISTER AND WITHDRAWAL BY TYPE OF COLLEGE

	Four-Year College		Two-Year College	
Variables	Persister	Withdrawal	Persister	Withdrawal
SES	.432 (.701)	.255 (.703)	.235 (.640)	.081 (.656)
Female	.495 (.500)	.467 (.499)	.440 (.497)	.481 (.500)
White	.897 (.304)	.853 (.349)	.915 (.279)	.878 (.327)
High School Program	.814 (.389)	.674 (.469)	.613 (.488)	.478 (.500)
Percentile Rank	75.4 (23.7)	63.4 (24.8)	61.1 (25.5)	52.3 (25.8)
Academic Ability	230 (24)	219 (28)	215 (26)	207 (28)
Aspiration	5.263 (.559)	5.042 (.770)	4.811 (.769)	4.447 (.973)
Scholarship	.396 (.489)	.317 (.465)	.290 (.454)	.239 (.427)
Loan	.220 (.414)	.212 (.409)	.059 (.237)	.079 (.270)
Work in October 1972	1.279 (.490)	1.423 (.643)	1.596 (.635)	1.719 (.720)
College Grades	5.780 (1.274)	5.192 (1.452)	5.821 (1.266)	5.321 (1.391)
N	2,998	1,541	555	823

and magnitude of their relationships. In the four-year colleges, academic ability scores and achievement, as measured by percentile rank in high school and college grades, had greater relationships with college withdrawal than other variables. In the two-year colleges, educational aspiration had the highest relationship with college withdrawal. Scholarship recipients tended to be more persistent than nonrecipients, but receiving a loan had no relationship with persistence. However, none of the correlations was greater than .25. The low correlations between predictor variables and withdrawal were consistent with previous findings.

As shown in Table 2, many predictor variables were related to each other, and this could mislead the interpretations based upon the simple correlation between a single predictor variable and withdrawal. For example, academic ability was related to high school program, percentile rank, SES, and race (white); thus, the unique relationship between academic ability and withdrawal may be confounded by these variables; or, conversely, the effects of these variables may be confounded by academic ability. The unique relationship between a predictor and withdrawal is, therefore, better represented by standardized regression coefficients.

The standardized regression coefficients for the full withdrawal model are presented in Table 3. These statistics help to reveal the direct and indirect relationships between predictor variables and withdrawal behavior. In general, the pattern of relationships between predictors and withdrawal was similar to that described by simple univariate statistics (means and simple correlations). However, the most important predictors for four-year college students in terms of the magnitude of "effect" (i.e., direct or unique relationship) were revealed: college grades, percentile rank in class, high school program, educational aspirations and employment, race (white), and SES, in that order. For the two-year college students, a somewhat different order and set of variables were involved. In rank order of importance they were: college grades, sex, rank in class, high school program, SES, and educational aspirations.

The overall magnitude of the relationships was small. The total variance of withdrawal behavior accounted for by the 11 variables was about 10 percent for four-year college students and 9 percent for the two-year college students (see multiple R^2 in Table 3). Several interesting findings, however, surfaced from the multiple regression analyses. First, academic ability was no longer related to withdrawal in either four-year or two-year colleges largely because the effects were indirectly mediated through aspirations, college achievement, and scholarship. Second, race (white) had a positive regression weight on withdrawal behaviors, although the weight was significant ($p < .01$) only among the four-year college students. This means that white students are more likely than blacks to withdraw from colleges when important variables such as SES, achievement, and aspiration are controlled. As shown in Table 3, whites were more likely to be in an academic high school program and to have

Table 2

SIMPLE CORRELATION COEFFICIENTS

	With-drawal	SES	Female	White	H.S. Program	Percentile Rank	Academic Ability	Aspira-tion	Scholar-ship	Loan	Work 1972	College Grades
Withdrawal		-.12	-.03	-.06	-.16	-.25	-.21	-.16	-.08	-.01	.12	-.20
SES	-.12		-.05	.35	.18	.05	.33	.17	-.27	-.26	-.14	.10
Female	.04	-.04		-.10	.00	.19	-.02	-.10	.04	.06	-.08	.13
White	-.06	.31	-.04		.20	.15	.46	.01	-.11	-.15	-.01	.14
H.S. Program	-.13	.18	.00	.21		.26	.41	.17	.01	.00	-.09	.13
Percentile Rank	-.17	.00	.25	.12	.25		.51	.17	.21	.06	-.08	.44
Academic Ability	-.15	.21	.02	.45	.42	.46		.25	.08	-.02	-.09	.34
Aspiration	-.20	.21	-.11	.06	.25	.18	.25		.06	.00	-.09	.09
Scholarship	-.06	-.20	-.01	-.06	.04	.14	.09	.07		.32	.01	.12
Loan	.04	-.17	.03	-.05	.01	.00	.01	-.01	.21		.02	-.02
Work 1972	.09	.00	-.09	.08	-.04	-.02	-.02	-.07	-.08	-.02		-.03
College Grades	-.18	.08	.22	.10	.16	.45	.35	.11	.09	.00	.04	

NOTE: The upper triangular matrix is for four-year college students, N=4,539, r>.03 is significant at the .01 level.

The lower triangular matrix is for two-year college students, N=1,378, r>.06 is significant at the .01 level.

Table 3

STANDARDIZED REGRESSION COEFFICIENTS FOR THE FULL WITHDRAWAL MODEL

	SES	Female	White	H.S. Program	Percentile Rank	Academic Ability	Aspiration	Scholarship	Loan	Work 1972	College Grades	Withdrawal
SES		-.05†	.29†	.12†	-.04	.16†	-.14†	-.30†	-.17†	-.14†	.05*	-.04*
Female	-.04		-.06†	.02	.20†	-.07†	-.14†	.01	.03	-.10†	.09†	.03
White	.29†	-.04		.12†	.17†	.27†	-.14†	-.10†	-.06†	.04†	.02	.08†
H.S. Program	.11†	.03	.16†		.20†	.17†	.06†	.00	.04*	-.05*	-.01	-.10†
Percentile Rank	-.09†	.25†	.07	.22†		.43†	.09†	.16†	-.02	-.04	.32†	-.11†
Academic Ability	.11†	-.09†	.30†	.23†	.39†		.20†	.13†	.01	-.03	.16†	-.03
Aspiration	.18†	-.14†	-.10*	.15†	.13†	.12*		.04	.00	-.06†	.00	-.09†
Scholarship	-.24†	-.04	-.05	.04	.07	.11*	.09*		.28†	.01	.05*	-.01
Loan	-.13†	.06	.00	.06	-.04	.00	.01	.20†		.01	-.05*	.01
Work 1972	-.08	-.11†	.10*	-.02	.01	.03	-.06	-.09*	.02		.00	.09†
College Grades	.01	.10†	-.02	.07	.34†	.18†	-.01	.05	-.02	.01		-.12†
Withdrawal	-.09*	.12†	.06	-.09*	-.10*	.02	-.09*	-.04	.00	.04	-.13†	

NOTE:

1. The upper triangular matrix is for four-year college students, and the lower triangular matrix is for two-year college students.
2. Multiple R^2's were .098 and .092 for withdrawal from four-year institutions and two-year institutions, respectively. Both are significant at the .01 level.

*p < .05

†p < .01

higher class rank and test scores, but whites had lower educational aspirations than blacks. Third, in two-year but not four-year colleges, sex (female) became significantly related to withdrawal, indicating that females were more likely than male students to withdraw.

High school percentile, educational aspirations, and college grades were significantly related to withdrawal after other predictor variables were considered. These results were consistent with previous findings (Demitroff, 1974; Summerskill, 1962; Tinto, 1975).

SES was also significantly related to college withdrawal after other predictor variables were controlled. This, however, probably reflects something more about the effect of parental expectations and pressure rather than financial conditions, since neither scholarships nor loans had a significant relationship to college withdrawal in either the four-year or two-year institutions. If financial stress leads to higher withdrawal rate, then recipients of scholarships or loans should show a higher persistence rate than nonrecipients. This, however, was not supported by the analyses; none of the regression weights for financial aid programs were significant at the .05 level. The NLS data did not support the claim that scholarships but not loans are related to college persistence and thus financial aid funds should be used solely for scholarship or grants (Astin, 1973; Iffert, 1958).

High school curricular program was another predictor variable associated with withdrawal at both types of colleges, while working was associated only with four-year college withdrawal after other variables were controlled. The high school program was particularly noteworthy because it seemed to indicate that a particular curriculum may have attracted certain types of students who were more likely to persist in college or prepared students differently so that they were better qualified for and had a greater commitment to college education. Working may have a depressant effect on persistence among four-year college students.

IV. DISCUSSION

The National Longitudinal Study of the High School Class of 1972 has provided a data base for an examination of the withdrawal process of academic students in both four-year and two-year institutions. Results indicated that

withdrawal from college was not highly predictable. The proportion of variance accountable for by 11 selected variables typically considered important was about 10 percent. This indicates that withdrawal is a complex process in which each individual functions quite differently, and there are not many common elements across individuals. Nevertheless, the analyses yielded several interesting findings, and they are discussed as follows.

The data failed to reveal any substantial differences in withdrawal rates between men and women students in four-year institutions, contrary to findings of many previous studies (e.g., Astin, 1972; Cope, 1971; Spady, 1970). However, in two-year colleges, women students were more likely than men students to withdraw after other variables such as SES, aspiration, and ability were controlled, although they obtained better grades in college than men. Reasons for this sex difference were unknown. It is possible that more women students in two-year colleges were less clear about their educational goals or their educational goals were interrupted by other obstacles such as marriage. Whatever the reason, the finding may partially explain the inconsistency among previous studies; that is, the existence of sex differences depends upon the type of institutions or programs. On the other hand, the present findings, in contrast to earlier results, may reflect a change in the historical circumstances that affect sex roles.

Without considering other variables, the results supported findings from other studies that black students are more likely to withdraw from college than white students (e.g., Flax, 1971; Astin, 1975). However, when SES or other variables were controlled, white students in four-year institutions had a higher withdrawal rate than black students. In two-year colleges, the difference was in the same direction, although not statistically significant. This pattern of race difference was also found in a study of college entry (Peng, 1977). Thus, it is concluded that race differences can largely be accounted for by variables such as rank in class, high school program (academic preparation), and SES. Race itself has little effect on college persistence or entry. The higher withdrawal rate of white students in the four-year college also suggested that more white students than blacks may have been misguided or "pushed" into the four-year colleges because of peer culture or parental expectations.

High school program was significantly related to college withdrawal, showing that the individuals from general or vocational programs were more

likely to withdraw than students from academic programs. This finding was expected because academic or college preparatory programs are presumably designed to prepare students for college, and they may lead students to a greater commitment to or integration into the college system, which, as postulated by Spady (1970) and Tinto (1975), is a precondition to a high degree of persistence. In contrast, students from general or vocational programs who entered college and then withdrew may have been ill-advised to go to college in the first place, or were inadequately prepared. This simply points out the need for effective counseling services in high school and/or evaluation of high school curricular programs.

Consistent with findings of other studies (e.g., Sewell & Shah, 1967; Eckland, 1964), family background, as measured by socioeconomic status (SES), was an important variable associated with college withdrawal. In general, students from lower SES families had a higher withdrawal rate than students from higher SES families. This finding may lead one to suspect that low SES students may be financially hampered in college. However, no significant relationship between financial stress and withdrawal was found in the analyses. Neither scholarship nor loan recipients were more persistent than nonrecipients when other variables were controlled. Thus, the relationship between SES and withdrawal could primarily reflect the effect of parental expectations. As Sewell & Shah (1967) indicated, the factors contributing to withdrawal among low SES students may go beyond mere monetary need to precollege environment and personality characteristics, as reflected in lower motivation and aspirations.

The motivational hypothesis about college withdrawal is further supported by the significant effects of aspirations and achievement on withdrawal behavior, as measured by percentile rank and college grades, which reflect motivation as well as ability. In an earlier study using NLS data, Peng, Ashburn, and Dunteman (1976) found a large proportion of withdrawals reported a lack of clear plans (i.e., unsure what they wanted to do) and an inability to relate the value of college education to the real world. If students do not know what they want to do, if they do not see the relevance of their school work, or if they do not even aspire to complete college, then somewhere along the line they have been inappropriately led or counseled into college. Consequently, their motivation for studying or persisting is low, and dropping out is very likely. As early as 1962, Summerskill pointed out that motivation

was a crucial variable in the study of the dropout process. Spady (1970) agrees, citing other studies which substantiate this perspective. The issue is extremely complex and requires a comprehensive model which includes a number of personal and social variables--in particular, perhaps measures of need for achievement and affiliation (Spady, 1970). This study included no explicit measures which would begin to tap in-depth motivational variables. Most withdrawals may have the academic ability required for college education; they can finish college if they want to. But who is motivated is another question.

The motivation to complete college may largely come from intrinsic rewards; yet external rewards, such as being able to obtain a better job and quality of life, may motivate some students to overcome academic or other problems and stay in school. However, since intrinsic rewards are never the same to every individual, and our society may never provide enough external rewards for some people, the withdrawal problem will continue. Any substantial change probably will depend, to a large extent, upon the students' perception about the value or satisfaction of a college education.

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Disclaimer

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TRANSFERS AMONG POSTSECONDARY EDUCATION INSTITUTIONS

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Transfers Among Postsecondary Education Institutions

A. Background of the Study

Transferring from one college to another has become an increasingly important trend in higher education. A recent national estimate indicated that about 600,000 students move among different types of institutions annually (Willingham, 1973). This estimate includes students who transfer from two-year to four-year institutions or vice versa, as well as students who move among the same types of institution. This trend of transferring, particularly between two-year and four-year institutions, is likely to grow because of the expansion of community colleges and the financial pressures of four-year college attendance (Watson, 1974; Anderson & Peterson, 1973).

This growing trend raises several questions concerning transfer students. Of particular interest in this paper are the characteristics of the two largest transfer groups (4 → 4, and 2 → 4) and how they differ from their nontransferring counterparts.

Previous transfer research has provided little information that can be generalized to all institutions of higher education, since most studies have been limited to a specific institution or geographic region (e.g., Anderson & Riehl, 1971; Hodgson & Dickinson, 1974; Davis & Balfour, 1973). While those studies are valuable to the specific institutions studied, they do not provide a national picture of the transfer phenomenon, nor do they provide a sufficient basis for national policymaking. A large-scale study involving a representative sample of institutions is a prerequisite to answering questions regarding transfer students in higher education at the national level.

In addition, not much is known about the characteristics of transfer students and how they differ from their nontransferring counterparts (Kintzer, 1973). A comprehensive investigation of the differences between nontransfer and transfer students in background and individual characteristics is needed to provide some information on which national educational programs to meet transfer student needs might be based.

B. Purposes of the Study

The primary purpose of this study is to estimate the proportion of transfer students in various categories and to explore some potential explanations of the transfer phenomenon. Specifically, this paper was designed to

accomplish the following objectives:

1. To obtain national estimates of the number and proportion of students in the 4 → 4 and 2 → 4 transfer categories;
2. To compare students who transferred from a four-year college to another four-year college (4 → 4 transfers) with those who enrolled in a four-year college immediately after high school and persisted in the same institution.
3. To compare students who transferred from a two-year to a four-year college with those who enrolled in a four-year college immediately after high school and persisted in the same institution, and those who were still enrolled two years later in the same two-year college.

C. The Data Base

The data used in this study were drawn from the base-year and the first and second follow-up data of the National Longitudinal Study of the High School Class of 1972 (NLS). The NLS data base is comprehensive; and its longitudinal design, based upon a national probability sample, permits analyses that provide information about the psychological, educational, and career development of people in their early adulthood. The NLS was designed to discover what happens to young people after they leave high school and to relate this information to their prior education experiences and their personal and biographical characteristics. Educational and work experiences, plans, aspirations, attitudes, and personal background characteristics were measured at three points in time on a sample of over 20,000 high school seniors of the class of 1972. The base-year data were collected in the spring of 1972, the first follow-up data were collected in the fall and winter of 1973-74, and the second follow-up data were collected in the fall and winter of 1974-75.

Of the NLS participants who answered the first follow-up survey, about 50 percent were enrolled in about 1,800 diverse institutions of higher education in the fall of 1972 (6,196 in four-year colleges and 3,080 in two-year colleges). Some of those students failed to provide information about their education in the fall of 1973 or failed to continue their participation in the second follow-up survey, and consequently their educational status could not be determined for the fall of 1973 or 1974 and hence their transfer status

could not be ascertained. The final number of college students retained for this study was 8,892 (5,974 initially enrolled in four-year colleges and 2,918 initially enrolled in two-year colleges). Thus, data about transfer status were available for 96 percent of the students who enrolled in a higher educational institution.

D. Extent of Transferring

Previous studies have not provided a consistent national picture about college transfers. For example, one study (Holstrom and Bisconti, 1974) found that about 52 percent of full-time two-year college students transferred to four-year institutions over a four-year period, while another (van Alstyne et al., 1973) found that about 36 percent of two-year college full-time students transferred to four-year colleges over a similar time period. Burt(1972) indicated that new transfer students in 1968 numbered about 456,000, while Willingham (1972) estimated the number to be 600,000 annually. The inconsistencies may reflect the changes of college-going trends in recent years, or they may reflect the nonrepresentative samples of institutions or students studied. Thus, current information about transferring is needed from a national sample of students attending a representative sample of institutions.

The estimation of the total percentage and the number of students who transferred among colleges over a two-year period require careful consideration of changes in student college-going status. Four possible transfer groups are specified in Table 1. The specifications indicate the type of initial and final colleges. Thus, a student who entered a four-year college, transferred to a two-year college, and then transferred back to a four-year college would be indicated by a 4 → 4 transfer as would one direct transfer between four-year colleges.

The total percentages and numbers of students for the transfer groups are summarized in Figure 1. Two years after initial matriculation, slightly over 24 percent of two-year college students transferred to four-year colleges. (It should be noted that about 52 percent left school, and 24 percent were still in two-year colleges.) Those transfers constituted about 14 percent of the total four-year college enrollment. The proportion of two-year college students who transferred to four-year institutions was consistent with findings of some previous studies (e.g., van Alstyne, 1974).

Table 1

TRANSFER SPECIFICATION

Transfer Group	College-Going Status		
	October 1972	October 1973	October 1974
1. 4→4 Transfers	4	C	D4
	4	D4	C
	4	D4	D4
	4	2	4
	4	W	D4
2. 2→2 Transfers	2	C	D2
	2	D2	C
	2	D2	D2
	2	4	2
	2	W	D2
3. 4→2 Transfers	4	C	2
	4	D4	2
	4	2	C
	4	2	D2
	4	W	2
4. 2→4 Transfers	2	C	4
	2	D2	4
	2	4	C
	2	4	D4
	2	W	4

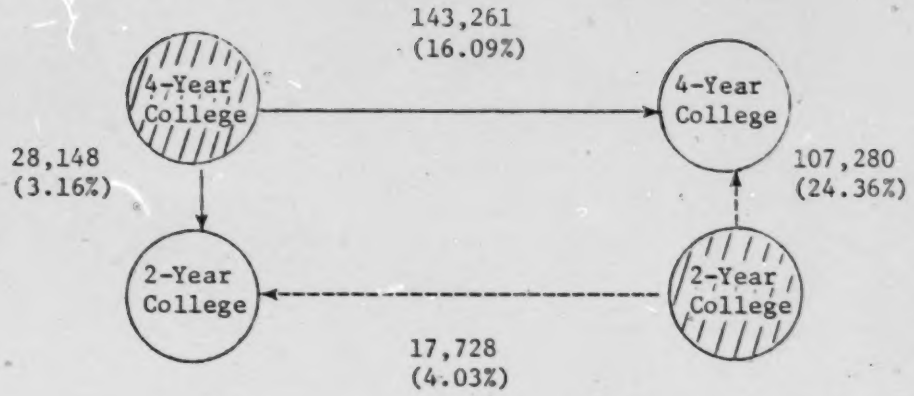
Note: 4 = 4-year college.

2 = 2-year college.

D = Different 4-year or 2-year college.

C = Continuing in the same college.

W = Withdrawing from study.



Note: Sample N for four-year college students was 5,974, and for two-year college students it was 2,918.

Figure 1. Total Percentages and Estimated Number of Students Who Transferred Over Two Years. Initial College is Indicated by Shaded Circle

However, the total number of transfers was smaller than that estimated by Willingham (1972), based upon regional or institutional studies.

About three percent of the four-year college students moved to two-year colleges. Figure 1 also shows that about 16 percent of four-year college students moved among four-year colleges over two years. The total number of such 4 → 4 transfers was slightly greater than that of the 2 → 4 transfers.

E. Comparisons Between Four-Year College Transfers and Nontransfers

The weighted means and common standard deviations (i.e., pooled across groups) of the background variables are presented in Table 2. Several variables were zero-one dichotomies for which the means are proportions of students having the related background characteristic. For example, the value of .47 in the first column of Table 2 indicates that 47 percent of persisters were female students. All continuous variables such as SES and aptitude test scores were coded from low to high. The test statistics for the comparison of four-year college transfers and nontransfers are presented in Table 3.

Persisters and 4 → 4 transfers were different with respect to their overall background (the multivariate F-ratio of 2.83 was significant at the .001 level with 12 and 3231 degrees of freedom, see Table 3). The differences were particularly substantial for SES, sex, and college grades (see the univariate F-ratios for these variables in Table 3). The differences on these

Table 2

WEIGHTED MEANS AND STANDARD DEVIATIONS FOR VARIOUS COLLEGE-GOING STATUS GROUPS ON BACKGROUND VARIABLES (FOUR-YEAR COLLEGES)

Background Variables*	Persisters	4 → 4 Transfers	Common Standard Deviation†
SES	.45	.52	.69
Female (vs. Male)	.47	.57	.50
Black (vs. Nonblack)	.06	.04	.23
Hispanic (vs. Non-Hispanic)	.01	.01	.12
High School Grades	6.65	6.65	1.15
Academic Aptitude Test Scores	58.26	57.85	5.73
Educational Aspiration	5.68	5.64	.62
Academic High School Program (vs. General and Voc-Tech)	.84	.82	.39
College Grades	5.79	5.93	1.32
Academic Field of Study (vs. Nonacademic)	.95	.95	.25
South (vs. Others)	.25	.24	.44
West (vs. Others)	.14	.15	.35
N§	1,948	547	3,246

*SES is a composite score with a mean of 0 and standard deviation of 1. Aptitude test scores are standardized scores with a mean of 50 and standard deviation of 10. High school and college grades were coded as follows: mostly A = 8; about half A and half B = 7; mostly B = 6; about half B and half C = 5; mostly C = 4; about half C and half D = 3; mostly D = 2; and mostly below D = 1. Educational aspirations were coded as follows: less than high school = 1; high school = 2; some vocational studies beyond high school = 3; two-year college = 4; four-year college = 5; and graduate school = 6.

†The squares of these values are within-group means of squares (the error terms for univariate analysis).

§The differences in sample size in this analysis and previous analyses were due to missing data on background variables, primarily because of nonparticipation in the base-year survey.

Table 3

TEST STATISTICS FOR THE COMPARISON BETWEEN PERSISTERS AND 4 → 4 TRANSFERS

Variable	Univariate F* (d.f. = 1, 3242)	Step-Down F† (d.f. = 1, 3242)	Standardized Discriminant Function Coefficients‡
SES	4.06§	4.06§	.44
Female (vs. Male)	15.46∞	16.29∞	.66
Black (vs. Nonblack)	1.18	.73	-.26
Hispanic (vs. non-Hispanic)	.00	.09	-.00
High School Grades	.00	1.05	-.15
Academic Aptitude Test Scores	2.17	5.02§	-.51
Educational Aspiration	1.88	.70	-.14
Academic High School Program (vs. General and Voc-Tech)	.43	.02	-.03
College Grades	5.09§	5.78§	.47
Academic Field of Study (vs. Nonacademic)	.12	.03	.03
South (vs. Others)	.22	.09	-.04
West (vs. Others)	.29	.05	.04
	Multivariate F = 2.83 (d.f. = 12, 3231) $p < .001$		$\chi^2_{(12)} = 33.81$ $p < .001$

*Within-group variance is shown in Table 8.

†Variables are listed in the order in which the step-down analysis was performed. Thus, the step-down F shows the significance of the indicated dependent variable, controlling for all variables listed above it.

‡The sign of the discriminant function coefficients shows the direction of relationship. A positive sign indicates that transfers were higher on the d dependent variables than were persisters.

§$p < .05$

∞$p < .01$

variables still existed even when some prior variables were controlled (i.e., the step-down F-ratios on these variables were still significant at the .05 level). After SES, sex, race, and high school grades were considered, persisters had significantly higher aptitude test scores than transfers.

The discriminant function coefficients show that the variables SES, sex, aptitude test, and college grades carried greater weights than other variables in differentiating the persisters from 4 → 4 transfers. As indicated by the sign of the coefficients and statistics in Table 2, the 4 → 4 transfer group was composed of more female students than the persister group. This indicates that more female than male students transferred among four-year colleges. The 4 → 4 transfer students also tended to be higher on SES and college achievement than persisters after other variables were considered. The groups were about one-tenth of a standard deviation apart on both variables. However, it should be noted that 4 → 4 transfer students had lower aptitude test scores than persisters. It may be possible that the lower aptitude test scores of 4 → 4 transfer students prohibit some of them from getting into the kind of institution they like, and transferring becomes an alternative solution. The results suggest that those students moving among the four-year colleges were students who had the qualifications for greater mobility--high SES background which reduces financial pressure, and high achievement which would be accepted by other colleges. However, why there were more female than male 4 → 4 transfers is unknown. It might be that female students have more difficulty than do males in finding a suitable opportunity for career development or a satisfactory social life on campus.

F. Comparisons Between Two- to Four-Year College Transfers and Those Who Remained in Two-Year Colleges

The same techniques used in the comparisons of the four-year college students were employed for the analyses of the two-year college students. The weighted means and the pooled standard deviations on the selected background variables are presented in Table 4, and the test statistics for the group comparisons are included in Table 5.

Students who moved to the four-year colleges were quite different from those who remained in the two-year colleges (see Table 5). The differences were significant on almost every individual variable except sex and black-versus-nonblack (the univariate F-ratios for those two variables were not

Table 4

WEIGHTED MEANS AND STANDARD DEVIATIONS FOR VARIOUS COLLEGE-GOING STATUS GROUPS ON BACKGROUND VARIABLES (TWO-YEAR COLLEGES)

Background Variables*	Persisters	2 → 4 Transfers	Common Standard Deviation†
SES	.10	.29	.62
Female (vs. Male)	.43	.45	.50
Black (vs. Nonblack)	.03	.03	.17
Hispanic (vs. Non-Hispanic)	.06	.01	.19
High School Grades	5.61	6.11	1.22
Academic Aptitude Test Scores	53.35	55.02	6.20
Educational Aspiration	5.04	5.38	.95
Academic High School Program (vs. General and Voc-Tech)	.54	.67	.49
College Grades	5.40	6.02	1.31
Academic Field of Study (vs. Nonacademic)	.76	.80	.44
South (vs. Others)	.19	.29	.42
West (vs. Others)	.43	.24	.45
N‡	253	360	1,291

*SES is a composite score with a mean of 0 and standard deviation of 1. Aptitude test scores are standardized scores with a mean of 50 and standard deviation of 10. High school and college grades were coded as follows: mostly A = 8; about half A and half B = 7; mostly B = 6; about half B and half C = 5; mostly C = 4; about half C and half D = 3; mostly D = 2; and mostly below D = 1. Educational aspirations were coded as follows: less than high school = 1; high school = 2; some vocational studies beyond high school = 3; two-year college = 4; four-year college = 5; and graduate school = 6.

†The squares of these values are within-group means of squares (the error terms for univariate analysis).

‡The differences in sample size in this analysis and previous analyses were due to missing data on background variables, primarily because of nonparticipation in the base-year survey.

Table 5

TEST STATISTICS FOR THE COMPARISON BETWEEN 2→4 TRANSFERS AND STUDENTS WHO REMAINED IN TWO-YEAR COLLEGES (i.e., PERSISTERS AND 2→2 TRANSFERS)

Variable	Univariate F* (d.f. = 1, 1286)	Step-Down F†	Standardized Discriminant Function Coefficients†
SES	9.29§	9.29§	.26
Female (vs. Male)	.66	.90	-.02
Black (vs. Nonblack)	.38	.03	.01
Hispanic (vs. non-Hispanic)	12.84§	9.46§	-.24
High School Grades	29.34§	31.20§	.37
Academic Aptitude Test Scores	19.71§	2.28	.03
Educational Aspiration	8.92§	3.60	.14
Academic High School Program (vs. General and Voc-Tech)	6.81§	.82	.02
College Grades	34.57§	12.52§	.48
Academic Field of Study (vs. Nonacademic)	16.99§	10.00§	.33
South (vs. Others)	5.77∞	4.67∞	.12
West (vs. Others)	10.48§	7.08∞	-.32
	Multivariate F = 7.85 (d.f. = 12, 1275) $p < .001$		$\chi^2_{(12)} = 91.23$ $p < .001$

*Within-group variance is shown in Table 10.

†Variables are listed in the order in which the step-down analysis was performed. Thus, the step-down F shows the significance of the indicated dependent variable, controlling for all variables listed above it.

‡The sign of the discriminant function coefficients shows the direction of relationship. A positive sign indicates that transfers were higher on the dependent variables than were students who remained in the two-year college.

§$p < .05$

∞$p < .01$

significant at the .05 level). It can be seen from Table 4 that 2 → 4 transfers had a higher SES level, were composed of fewer Hispanics, had higher high school and college grades, and were more likely to major in academic fields than were those who remained in the two-year college. The percentage of students in the West who persisted in two-year colleges was greater than the percentage of those who transferred to four-year colleges. The opposite pattern held true for the South.

Some of these differences, however, became insignificant when some prior variables were held constant. As shown by the step-down statistics, 2 → 4 transfers may be a result of higher academic qualifications. A number of reasons might explain why these students transferred to a four-year school. Many of the 2 → 4 transfers no doubt were students who aspired to a four-year college education, but such reasons as inadequate preparation in high school or inadequate academic qualifications led them to enroll in a two-year college initially. There might be some financial considerations involved since two-year colleges are generally less expensive than four-year colleges. There might also be some decision problems. Many students may not know what they want to study or what they want to do in the future; thus, they simply use a two-year college as a way station until their goals are set.

G. Comparisons Between 2 → 4 Transfers and Four-Year College Native Students

Going to a two-year college initially and then transferring to a four-year college, rather than enrolling in a four-year college immediately after high school, is considered by many students as a satisfactory strategy for attaining a higher education. A recent study by the Carnegie Commission of Higher Education (1970) revealed that over two-thirds of the students entering two-year colleges intended to transfer to four-year colleges. The NLS data indicated that about a quarter of the two-year college students did transfer to four-year colleges within two years. Therefore, it is informative to examine the characteristics of the students taking these two alternate paths, and to compare them on a number of important variables.

The 2 → 4 transfers and four-year college native students[1/] were compared on the following variables:

1/ Native students were those students who attended four-year colleges immediately after high school graduation and who, after two years, persisted in four-year colleges or who transferred to other four-year colleges.

1. Background characteristics: sex, race, and socioeconomic background;
2. Region where the student graduated;
3. High school programs;
4. Academic performance: high school grades, aptitude test scores;
5. Educational aspirations;
6. Self-concept and locus of control;
7. Life goals: work, community, and family-oriented life goals.

The variables of self-concept, locus of control, and life goals were psychometrically constructed scales, measured when the students were seniors in high school. They were included on the assumption that they might influence an individual's choice of different educational or career paths. Both self-concept and locus of control were measured on a five-point scale. A high score on locus of control indicated a high degree of internality; a low score, a high degree of externality. A high score on self-concept indicated positive self-concept. Life goals were composites based upon items with a three-point scale, ranging from not important (1), to very important (3). Other selected variables, such as SES and educational aspiration, were specified earlier; the same definitions were applicable to the analysis in this section.

The weighted means and common standard deviations on the selected variables are presented in Table 6. The test statistics (F-ratios) of the group differences are included in Table 7. As expected, these two groups of students differed in their backgrounds and characteristics. (The multivariate F-ratio of 19.00 is significant at the .001 level with 15 and 2792 degrees of freedom.) The univariate F-ratios in Table 7 show that native and transfer students in four-year colleges differed significantly on most of the selected variables. Native students tended to have higher SES scores, high school grades, aptitude, and educational aspiration than transfer students. This finding was consistent with previous findings (e.g., Kintzer, 1973; Bringaum, 1970). Native students were more likely than were transfer students to have been graduated from high school academic programs, to have higher self-concepts, and to be more internal in locus of control. On the other hand, transfer students had higher scores on work-oriented and family-oriented life goals than native students, and were composed of proportionally more nonblack students. In addition, there were proportionally more transfers than native students in the West than in other regions.

Table 6

WEIGHTED MEANS AND COMMON STANDARD DEVIATIONS OF THE SELECTED VARIABLES FOR NATIVE AND 2→4 TRANSFER STUDENTS

Variable	Means		Common Standard Deviation
	Native	Transfer	
1. SES	.47	.29	.69
2. Female (vs. Male)	.49	.45	.50
3. Black (vs. Nonblack)	.05	.03	.22
4. Hispanic (vs. Non-Hispanic)	.01	.01	.12
5. High School Grades	6.66	6.11	1.14
6. Aptitude Test	58.06	54.80	5.66
7. Educational Aspiration	5.68	5.39	.56
8. Academic High School Program (vs. Nonacademic)	.84	.68	.38
9. Self-Esteem	4.02	3.91	.64
10. Locus of Control	4.07	3.96	.59
11. Work Life Goals	2.47	2.53	.37
12. Community Life Goals	2.10	2.14	.47
13. Family Life Goals	.94	.98	.40
14. South (vs. Non-South)	.25	.29	.44
15. West (vs. Non-West)	.13	.24	.34
N	2,451	357	

Because the selected variables are, in general, correlated with each other, the difference between native and transfer students on a certain variable may be confounded by other variables. To explore further the differences between these two groups of students, the selected variables were ordered for a step-down analysis of variance which indicates the statistical significance of the group differences on a variable, holding prior variables constant. The step-down F-ratios in Table 7 indicate that the findings from the univariate F tests (except those relating to self-esteem, locus of control, and life goals) still held. That is, native students had higher scores on SES, high school grades, aptitude tests, and educational aspirations than did transfer

Table 7

TEST STATISTICS FOR THE DIFFERENCES BETWEEN NATIVE STUDENTS AND 2→4 TRANSFERS ON THE SELECTED VARIABLES

Variable	Univariate F* (d.f. = 1, 2806)	Step-Down F†	Standardized Discriminant Function Coefficients‡
1. SES	20.98§	20.98§	.24
2. Female (vs. Male)	1.90	2.38	.05
3. Black (vs. Nonblack)	5.14§	10.25§	.39
4. Hispanic (vs. Non-Hispanic)	.01	1.16	.17
5. High School Grades	72.11§	77.18§	.32
6. Aptitude Test	102.80§	55.88§	.36
7. Educational Aspiration	86.49§	36.82§	.37
8. Academic High School Program (vs. Nonacademic)	55.29§	16.56§	.20
9. Self-Esteem	9.33§	.28	-.06
10. Locus of Control	11.82§	.01	.00
11. Work Life Goal	7.65∞	1.86	-.07
12. Community Life Goal	1.72	.73	-.05
13. Family Life Goal	4.25∞	.74	-.04
14. South (vs. Non-South)	3.51	3.73	-.24
15. West (vs. Non-West)	33.99§	46.06§	-.44
	Multivariate F = 19.00 d.f. = 15, 2792 p<.001		$\chi^2_{(15)} = 272.12$ p<.001

*Within-group variance is shown in Table 12.

†Variables are listed in the order in which the step-down analysis was performed. Thus, the step-down F shows the significance of the indicated dependent variable, controlling for all variables listed above it.

‡The sign of the discriminant function coefficients shows the direction of relationship. A positive sign indicates that native students were higher on the dependent variables than were 2 → 4 transfers.

§$p < .05$

∞$p < .01$

students, after controlling for prior variables; also, transfer students were composed more of nonblack students and students from the West than were native students.

The relative importance of individual variables in differentiating native and transfer students can be measured by the standardized discriminant function coefficients. Based on these coefficients as shown in Table 7, those variables that were significant in the step-down analysis carried greater weights in differentiating the two groups of students.

In summary, it is concluded that native students were very different from 2 → 4 transfers. Native students appeared to come from higher SES families and to have higher scores on ability, academic achievement, and aspiration. This finding is consistent with that of Holstrom and Bisconti (1974). Native students probably planned to go to four-year colleges early in high school, since they were graduated from high school college-preparatory programs in much larger proportions than transfer students. The high proportion of transfer students in the West may be a result of the fact that there are more two-year colleges in the West, and thus a greater proportion of students selected that path for obtaining higher education.

It is possible that many of the 2 → 4 transfer students might not have had adequate preparation in high school for a four-year college education immediately after high school graduation. The two-year institutions, which generally accept students of lower achievement, provide opportunities for those students to improve their academic ability and perhaps to focus on future goals. Also, many low-SES students may have originally attended two-year colleges to reduce the cost of education.

The two-year college may serve as a "warming-up place" for many students to readjust their plans and goals and to obtain additional academic preparation for further study. Going to a two-year college first, and then transferring to a four-year college, has become an alternative route to a college degree for students of lower SES, students of middle academic performance (e.g., Holmstrom and Bisconti, 1974), and perhaps students without clear career goals.

H. Summary

This paper presented estimates of transfer rates based on a national probability sample. Various transfer groups were described and contrasted with

relevant comparison groups. Important findings were: (1) 4 → 4 transfers had better academic achievement in college and were higher in socioeconomic status although their precollege aptitude tests were lower; (2) 2 → 4 transfers were extremely different from four-year nontransfers in almost every respect, presenting a profile of an average student with limited financial resources; (3) 2 → 4 transfers had, however, significantly higher grades and SES scores than two-year college persisters.

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Disclaimer

The opinions expressed in this paper do not necessarily reflect the position or policy of NCES, and no official endorsement by NCES should be inferred.

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IMPACT OF FINANCIAL AID ON POSTSECONDARY ENTRANCE AND PERSISTENCE

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Impact of Financial Aid on Postsecondary Entrance and Persistence

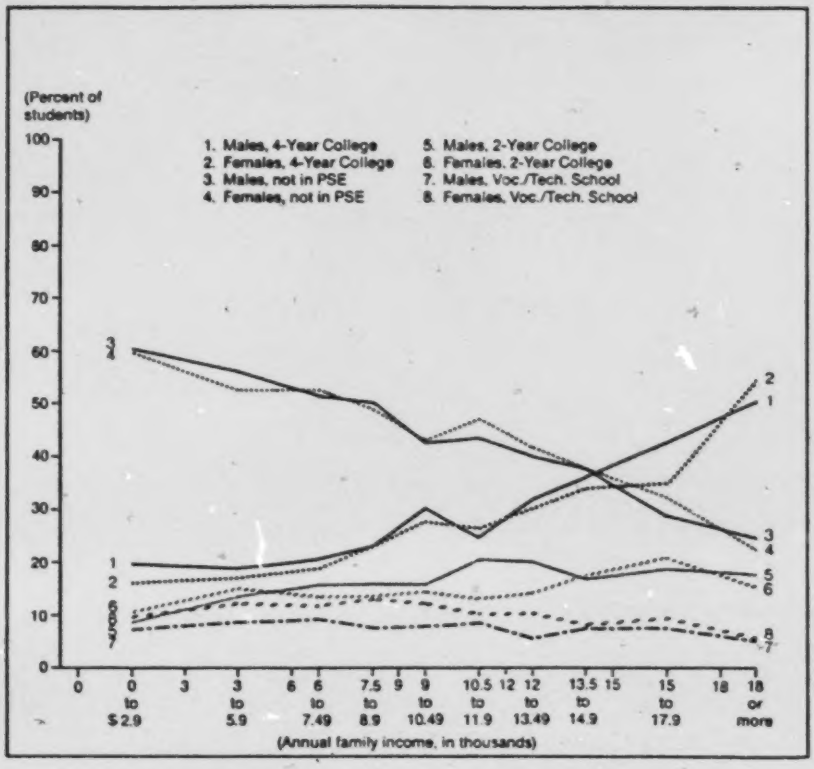
A. Purpose

It is perhaps belaboring the obvious to state that level of family income is related to college-going, a fact borne out sharply by the data from the first follow-up in the National Longitudinal Study of the High School Class of 1972. Figure 1, taken from the Condition of Education report (National Center for Education Statistics, 1975) of the National Center for Education Statistics, shows the proportions of individuals in the various family income categories who entered each of three major forms of post-secondary education (PSE). Neither is it surprising that college-going relates to family income most directly where four-year institutions (as opposed to two-year or to trade and proprietary schools) are concerned.

Many diverse factors may support this phenomenon. Postsecondary education not only requires payment of all or a portion of its costs by the individual and his family, but also involves delayed or modified entry into the labor market and a consequent reduction in immediate income. Aside from the matter of being able to afford college, family income is known to be related to such factors as scholastic ability of children (in turn related to entry into postsecondary education), expectation of parents that children will attend college, or to the realism of aspiring to a particular vocation for which college is a normal means of entry.

It is also belaboring the obvious to state that the overriding purpose of current Office of Education programs is to enhance educational opportunity (or, more specifically, to reduce inequalities in education opportunity), and that the principal federal strategy in pursuit of this goal is to provide funds directly and indirectly to students as a function of financial need. Financial aid, once principally a prize for outstanding academic promise, has become in principle a potential leveler of ability-to-pay for a college education.

For example, of the total USOE higher education budget of $2.5 billion in fiscal year 1975, 36.5 percent was invested in nonreturnable grant programs (Basic Educational Opportunity Grants, Supplementary Educational Opportunity



Source: NCES. The Condition of Education Report for 1975. Washington: U.S. Government Printing Office, 1975, p. 106.

Figure 1. Entry Into Postsecondary Education, by Type of Institution, Family Income, and Sex, for High School Class of 1972, October 1972.

Grants, and State Student Incentive Grants). Self-help programs (College Work Study, National Direct Student Loans, the Cooperative Education Program, and Guaranteed Student Loans) accounted for an additional 52.3 percent.

The purpose of this paper is to show how the NLS data, with particular emphasis on the base year and first follow-up information, has been used to answer some of the most obvious questions relevant to the current federal strategy. These may be summarized as follows:

1) What expectations did the high school senior class in 1972 planning to enter postsecondary education have as to how they would meet the costs? Do these expectations vary systematically with such factors as sex, race, family income, and ability level?
2) How realistic were these expectations, as borne out by later experience?

3) Who received aid? In particular, how was aid distributed among subgroups of students defined by sex, race, family income, ability level, and type of postsecondary institution attended?

4) Did the amount of money contributed by the family to support the individual in PSE vary by the cost of college or the amount of aid then received?

5) Defining "net price" as the difference between expenses and the sum of family contributions and direct aid: To what extent has direct aid equalized net price to students from various family income levels?

6) To what extent is direct aid related to persistence over time in postsecondary education?

B. Aid Expectations of High School Seniors in 1972

Of those high school seniors in the NLS sample planning postsecondary education in 1972, about two-thirds (65.1 percent) anticipated receiving some form of student aid; about four out of ten (or 40.5 percent) of all seniors planning to continue their schooling anticipated federal aid as all or part of this component of their subsequent educational costs.

Expectation of aid from any source varies markedly as a function of family income. Table 1 presents the proportions of seniors of various income levels planning PSE and anticipating (1) any aid or (2) other particular kinds of aid, including federal aid alone. Note, for example, that while about seven out of ten with family incomes of less than $6,000 per year anticipate federal aid, one out of four in the $15,000 and over family income bracket anticipate this particular kind of assistance from this source.

Expectation of aid also appears to be a function of racial/ethnic group (which is surely explained partially by patterns in family income among these groups). The minority groups, for example, are more likely to count, in particular, on federal aid than are whites (Table 2).

Differences are not so marked when seniors planning PSE are sorted into three groups (lowest quartile, middle half, and highest quartile) on a measure of general academic ability[1/] derived from scores on four cognitive tests

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1/ Of six tests administered in the base year, researchers at RTI after factor analytic study formed an equally weighted linear composite from the vocabulary, reading, letter group, and mathematics tests.

Table 1

PERCENTAGE OF SENIORS PLANNING POSTSECONDARY EDUCATON WHO ARE ALSO PLANNING TO USE FINANCIAL AID, BY TYPE OF AID AND BY FAMILY INCOME LEVEL: SPRING 1972

Source and Type of Aid	Family Income Level				
	Less than $6,000	$6,000 to $8,999	$9,000 to $11,999	$12,000 to $14,999	$15,000 and over
Federal or Non-Federal Aid	82.9	77.8	72.6	65.8	49.8
Non-Federal Aid	65.6	64.2	61.7	57.6	41.9
Federal Aid	69.0	53.5	44.6	36.9	25.9
Federal Scholarships or Grants	30.2	18.6	13.5	10.8	6.9
Federal Loans	29.0	26.7	22.2	16.7	10.4
College Work-Study Programs	37.3	28.3	24.2	20.2	14.3
Other Federal Programs	30.4	16.0	9.3	6.2	4.2
Total N (unweighted)	1,252	1,429	1,600	1,250	2,125

Table 2

PERCENTAGE OF SENIORS PLANNING POSTSECONDARY EDUCATION WHO ARE ALSO PLANNING TO USE FINANCIAL AID, BY TYPE OF AID AND BY SELECTED STUDENT SUBPOPULATION GROUPS: SPRING 1972

Source and Type of Aid	Total	Sex		Race			Ability			H. S. Program		
		Male	Female	Black	White	Spanish-American	High	Medium	Low	General	Academic	Voc/Tech
Federal or Non-Federal Aid	65.1	66.1	64.0	84.9	63.0	70.8	69.4	60.1	69.7	59.4	67.5	62.9
Non-Federal Aid	54.4	55.2	53.7	70.4	52.8	56.9	61.3	49.1	53.8	45.6	58.7	49.2
Federal Aid	40.5	40.4	40.7	66.2	37.4	56.3	42.1	37.1	47.5	37.5	41.6	41.0
Federal Scholarships or Grants	13.1	13.0	13.1	33.0	10.5	31.7	11.2	12.2	19.9	12.4	13.2	13.9
Federal Loans	18.1	16.4	19.8	35.8	16.0	25.0	21.5	15.1	19.6	14.0	19.8	17.4
College Work-Study Programs	22.0	21.3	22.6	38.2	20.0	32.3	24.8	19.1	23.4	18.3	23.8	19.6
Other Federal Programs	10.7	11.0	10.5	18.3	9.8	14.7	8.2	10.1	18.6	13.1	8.9	15.9
Total N (unweighted)	9,556	4,676	4,872	1,135	7,488	384	3,330	4,092	1,656	2,553	5,630	1,373

*See Table A-1, Appendix A, for breakdown by family income level.

administered in the base year (Table 2). For federal aid, almost five out of ten in the lowest ability quartile anticipate federal aid, as do about four out of ten in the highest ability quartile. About seven out of ten in both the high and low quartiles anticipate some form of student assistance.

No differences of practical significance were noted as a function of sex.

C. Fulfillment of Expectations for Aid

One set of analyses conducted by researchers at RTI has explored the proportions of those 1972 high school seniors anticipating aid who entered a postsecondary institution and, upon the first follow-up, reported receiving aid in 1972-73.

These data are somewhat confounded by the fact that various (and sometimes overlapping) categories of aid were used to inquire about expectations and fulfillment. However, of those stating an expectation of federal aid, 38 percent reported federal aid, 29 percent reported nonfederal aid, and 49 percent reported either federal or nonfederal aid, or both.

The data (Table 3) show that females were more likely to fulfill their plans for aid than males. Also, blacks and Spanish-Americans appear more likely than whites to fulfill their plans for federal aid, while whites are slightly more likely to fulfill plans for nonfederal aid. The most striking differences in fulfillment of aid expectations, however, occur as a function of ability: the more able are likely to get aid, a finding no doubt influenced by the fact that the more able are more likely to enter PSE and thus become eligible for aid.

D. Characteristics of Aid Recipients

About 29 percent of all NLS respondents attended four-year institutions immediately after graduation from high school, 14 percent attended two-year colleges, and another 10 percent enrolled in vocational and technical schools (Peng, 1977). Of those entering PSE, 36 percent reported receiving some kind of aid (either federal or nonfederal, or both) (Table 4), and 23 percent of those enrolled in PSE reported receiving some sort of federal aid.

When students are considered according to the kinds of PSE institution in which they were enrolled, higher proportions of those in four-year colleges report aid (27 percent report federal aid, 44 percent some type of aid) than do those in vocational/technical schools (22 percent federal aid, 31 percent some type of aid) or those in two-year colleges (16 percent federal aid, 27 percent some type of aid).

Table 3

FULFILLMENT OF FINANCIAL AID PLANS FOR THE TOTAL GROUP AND FOR STUDENT SUBGROUPS

Source and Type of Aid Planned for in Spring 1972	Source/Type of Aid Received in 1972-73 Academic Year			Total N (unweighted)
	Federal or Non-Federal Aid	Non-Federal Aid	Federal Aid	
TOTAL GROUP				
Federal or Non-Federal Aid	44.9	29.2	27.9	6,300
Non-Federal Aid	46.7	33.3	27.3	5,201
Federal Aid	49.4	29.2	38.1	4,033
SEX:				
MALES				
Federal or Non-Federal Aid	41.8	26.6	24.8	3,117
Non-Federal Aid	43.7	30.7	24.3	2,589
Federal Aid	45.2	25.3	32.6	1,936
FEMALES				
Federal or Non-Federal Aid	48.0	31.8	31.0	3,177
Non-Federal Aid	49.7	35.9	30.4	2,607
Federal Aid	53.5	33.0	40.8	2,093
RACE:				
BLACK				
Federal or Non-Federal Aid	41.6	19.8	35.6	952
Non-Federal Aid	43.3	22.3	36.5	775
Federal Aid	44.3	20.2	39.3	745
WHITE				
Federal or Non-Federal Aid	45.3	30.5	26.6	4,695
Non-Federal Aid	47.1	34.8	25.9	3,893
Federal Aid	50.3	30.6	36.4	2,815
SPANISH-AMERICAN				
Federal or Non-Federal Aid	43.4	22.8	35.2	284
Non-Federal Aid	45.0	25.0	36.3	224
Federal Aid	47.6	25.5	39.4	229
ABILITY:				
HIGH ABILITY				
Federal or Non-Federal Aid	54.3	41.3	30.6	2,286
Non-Federal Aid	56.2	45.1	30.5	2,020
Federal Aid	60.6	43.5	42.3	1,393
MEDIUM ABILITY				
Federal or Non-Federal Aid	41.6	23.1	27.6	2,511
Non-Federal Aid	42.6	26.6	26.5	2,033
Federal Aid	45.9	21.9	35.8	1,589
LOW ABILITY				
Federal or Non-Federal Aid	27.9	11.9	20.8	1,187
Non-Federal Aid	28.3	13.9	19.8	897
Federal Aid	31.7	12.5	25.1	843

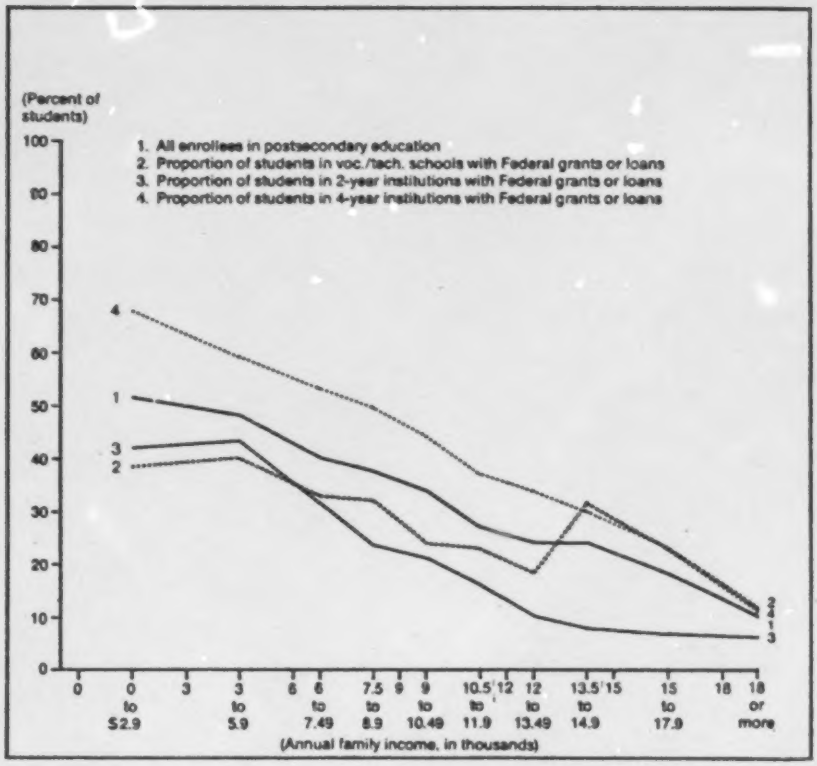
Table 4

PERCENTAGE OF STUDENTS ENROLLED IN POSTSECONDARY EDUCATION RECEIVING FINANCIAL AID, BY TYPE OF AID AND TYPE OF SCHOOL: 1972-73

Source and Type of Aid	Total	Type of School		
		Voc/Tech	2-Year College	4-Year College
Federal or Non-Federal Aid	36.2	30.7	27.3	43.8
Non-Federal Aid	22.9	11.6	15.6	30.3
Federal Aid	22.6	21.9	16.0	27.3
Federal Scholarships or Grants	6.6	3.6	4.8	8.6
Federal Loans	12.6	13.1	4.5	17.3
College Work-Study Programs	6.7	3.0	6.1	8.4
Other Federal Programs	4.6	5.0	5.4	4.3
Savings or Earnings	53.8	40.3	54.2	59.4
Family Support	59.4	47.4	54.2	68.1
Total N (unweighted)	11,421	1,559	3, 047	6,128

Figure 2 (from the Condition of Education report, 1975) shows show the proportions in the federal aid categories vary by family income. Proportions receiving federal aid tend to decrease as family income categories become progressively higher. This trend is sharper for federal aid than for all aid (data not shown here); almost one of every two students from families with reported incomes below $3,000 report receiving federal aid, as do less than one of ten in the over $18,000 income range. The sharpest trend occurs for federal aid recipients in four-year institutions: here, two-thirds of those in the below $3,000 income level who are enrolled in four-year institutions report federal aid, while less than one of ten of those students in the over $18,000 income category report federal aid.

Figure 3, drawn also from the Condition of Education report, shows the trends graphically for federal vs. nonfederal aid. It shows rather sharply

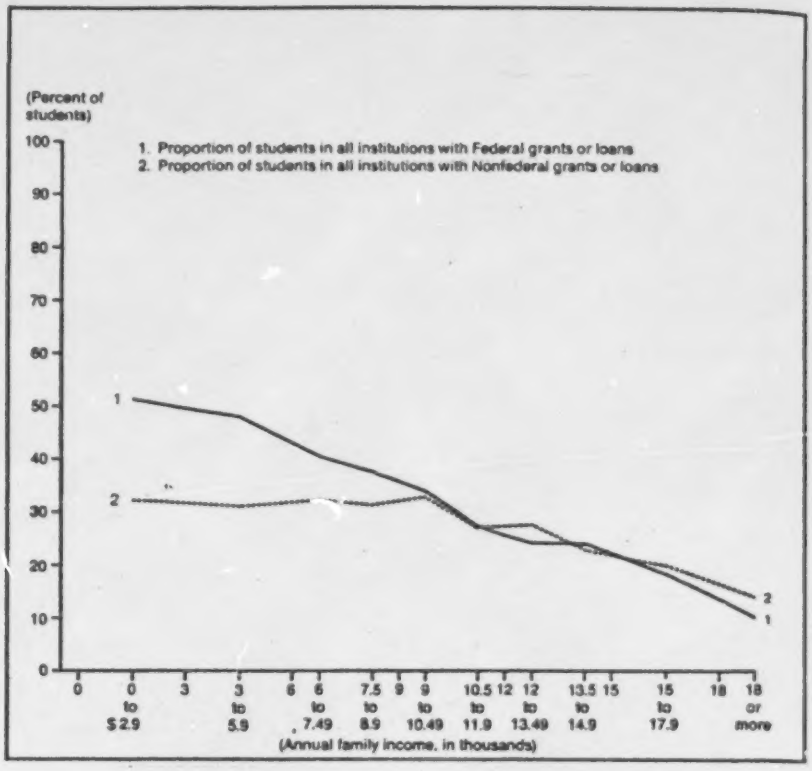


Source: NCES. The Condition of Education Report for 1975. Washington: U.S. Government Printing Office, 1975, p. 94.

Figure 2. Participation in Federal Financial Aid Programs, by Type of Institution and Family Income, for High School Class of 1972: 1972-73.

the divergence, in the expected direction, between federal and nonfederal aid at the lower income levels.

Of other characteristics: slightly higher proportions of females appear from the data to receive aid (Table 5). Minorities as a group report receiving aid much more frequently than do whites, no matter what the type of postsecondary institution (Table 6). There is a slight tendency for higher proportions of students in the highest ability quartile to report federal aid than students in the middle half or the lowest quartiles of the ability distribution (Table 7).



Source: NCES. The Condition of Education Report for 1975. Washington: U.S. Government Printing, Office, 1975, p. 94.

Figure 3. Participation in Federal Vs. Non-Federal Financial Aid Programs, by Family Income, for High School Class of 1972: 1972-73.

E. Impact of Aid on Amount of Family Contribution to PSE Costs and to "Net Price" for the Student, in Relation to Level of Family Income

In the previous sections, we have been concerned with participation rates for students of various kinds in PSE, with particular attention to characteristics of those receiving aid. While such rates describe important features of the context in which student aid programs operate, they reflect a multiplicity of factors beyond and in addition to whatever equalizing effect the availability of aid has. For example, the data reveal that aid goes more frequently to the lower income groups, to the racial minorities, and to students in four-year institutions; yet, what is the residual burden on the student and/or his family, and what does this imply with regard to the equalization of educational opportunity?

Table 5

PERCENTAGE OF STUDENTS ENROLLED IN POSTSECONDARY EDUCATION RECEIVING EACH TYPE OF FINANCIAL AID, BY TYPE OF SCHOOL AND SEX: 1972-73

Source and Type of Aid	Total		Voc/Tech		2-Year College		4-Year College	
	Male	Female	Male	Female	Male	Female	Male	Female
Federal or Non-Federal Aid	33.9	38.7	27.5	32.7	25.6	29.2	41.3	46.6
Non-Federal Aid	21.0	24.8	9.1	13.3	14.0	17.4	28.0	32.9
Federal Aid	20.6	24.7	20.5	22.8	14.9	17.2	24.7	30.2
Federal Scholarships or Grants	6.0	7.3	2.6	4.2	4.3	5.4	7.8	9.6
Federal Loans	11.4	13.9	11.8	14.0	3.9	5.2	15.7	19.0
College Work-Study Programs	5.6	7.9	3.3	2.9	5.1	7.3	6.7	10.3
Other Federal Programs	4.3	5.0	5.5	4.6	5.8	5.1	3.7	5.1
Savings or Earnings	59.7	47.9	48.4	35.1	61.0	46.9	64.0	54.3
Family Support	55.7	63.3	38.4	53.2	49.1	59.7	65.3	70.9
Total N (unweighted)	5,640	5,758	610	948	1,567	1,472	3,116	3,003

Table 6

PERCENTAGE OF STUDENTS ENROLLED IN POSTSECONDARY EDUCATION RECEIVING EACH TYPE OF FINANCIAL AID, BY TYPE OF SCHOOL AND RACE: 1972-73

Source and Type of Aid	Total			Voc/Tech			2-Year College			4-Year College		
	Black	White	Spanish American	Black	White	Spanish American	Black	White	Spanish American	Black	White	Spanish American
Federal or Non-Federal Aid	48.7	35.1	44.2	34.2	30.0	46.3	36.1	26.5	32.1	63.3	41.7	67.0
Non-Federal Aid	22.6	23.1	23.2	5.6	12.4	16.9	11.2	16.0	17.5	34.3	29.9	37.9
Federal Aid	41.2	20.6	34.9	28.4	20.9	30.9	29.2	14.4	24.5	54.3	25.4	56.8
Federal Scholarships or Grants	17.8	5.1	17.2	3.1	3.5	5.0	12.6	4.1	7.7	26.4	6.3	36.8
Federal Loans	22.7	11.6	17.2	20.6	11.5	28.3	8.0	4.2	3.5	31.8	15.8	32.9
College Work-Study Programs	16.9	5.7	10.6	5.6	2.8	0.0	13.4	5.0	11.6	23.9	7.0	16.6
Other Federal Programs	5.0	4.7	3.5	3.5	5.3	0.0	8.9	5.4	4.8	4.6	4.4	4.3
Savings or Earnings	32.8	56.8	42.2	24.0	43.3	30.0	37.8	56.3	46.6	36.1	62.2	47.0
Family Support	45.4	62.0	41.2	32.9	51.4	29.6	45.0	55.6	46.3	53.4	70.3	45.2
Total N (unweighted)	1,303	8,444	398	241	1,114	50	298	2,196	170	651	4,679	141

Table 7

PERCENTAGE OF STUDENTS ENROLLED IN POSTSECONDARY EDUCATION RECEIVING EACH TYPE OF FINANCIAL AID, BY ABILITY AND RACE: 1972-73

Source and Type of Aid	High Ability			Medium Ability			Low Ability		
	Black	White	Spanish-American	Black	White	Spanish-American	Black	White	Spanish-American
Federal or Non-Federal Aid	50.0	42.1	59.3	57.8	30.8	47.2	40.4	23.2	39.5
Non-Federal Aid	31.6	31.8	36.7	29.1	17.0	26.5	13.2	9.4	18.6
Federal Aid	43.4	23.1	38.7	49.4	19.0	36.1	34.4	15.8	32.8
Federal Scholarships or Grants	14.1	6.4	24.7	20.2	4.3	19.1	15.7	3.5	12.0
Federal Loans	34.2	14.5	29.8	31.4	10.1	18.5	17.4	6.2	14.0
College Work-Study Programs	14.9	7.0	26.7	22.1	5.0	7.9	12.9	3.8	12.4
Other Federal Programs	5.9	3.9	5.7	5.6	4.7	3.9	4.7	6.4	3.5
Savings or Earnings	56.0	64.4	69.4	41.0	55.5	45.4	30.9	40.3	36.4
Family Support	62.1	69.8	55.4	53.1	60.2	54.8	39.3	44.2	33.5
Total N (unweighted)	55	2,835	22	325	2,913	127	486	652	150

The first follow-up questionnaire utilized in the National Longitudinal Study asked students in PSE institutions to report their educational costs, and to account for how these costs were paid. Thus, students can be subdivided according to the levels of total PSE expenses; and the amounts of aid, family contributions, work income and savings, etc., that go to pay these expenses can be identified.

In this section, we shall focus on total costs, family contributions, grant aid, and "net price," which is the difference between total expenses and the sum of family contributions and grant aid. To the extent that net price is equalized across the range of family income levels, one may assume financial barriers have been equalized.

Table 8 shows, for six categories of expense level, and for students from the several family income categories, the mean net price, family contribution, grant aid, and total cost. These data compiled by the Office of Planning, Budgeting, and Evaluation of the Office of Education, show remarkably little variation across income classes in the actual net prices paid by full-time postsecondary students for most of the different expense levels. This is an important finding given the availability of aid and the diversity of distribution methods used for these programs. For example, of the federal student grant programs, only the Basic Grant Program distributes aid directly to the student on the basis of need alone. Other programs such as Supplemental Grants (SEOG) are awarded through the institution or, like the Veterans Educational Benefits, are awarded directly to the student on a nonneed basis. Furthermore, those states which have grant programs, and those private agencies which award grants, use a variety of distribution methods, some of which are only loosely related in need.

This relative equality is especially apparent up to an annual family income level of $12,000. (Most Office of Education sponsored aid is targeted on students at this family income level or below.) Although this relative equality is somewhat more apparent at the lower than at the higher expense levels, it is nonetheless true that out of 36 income/expense categories covered, only three or four appear to be significantly different from the mean for the particular cost level and the less-than-$12,000 income group. This can

Table 8

DISTRIBUTION OF 1972 HIGH SCHOOL SENIORS IN STUDY ACTIVITIES IN OCTOBER 1973 BY FAMILY INCOME AND TOTAL EDUCATIONAL EXPENSE

Ranges of Family Income

Ranges of Total Costs	(1) 0-2,999	(2) 3,000-5,999	(3) 6,000-7,499	(4) 7,500-8,999	(5) 9,000-10,499	(6) 10,500-11,999	(7) 0-11,999	(8) 12,000-13,499	(9) 13,500-14,999	(10) 15,000-17,999	(11) 18,000 or more	(12) 12,000 or more	(13) Total
$0-1,500													
Net Price	203	208	149	210	202	[illegible]	193	154	186	160	122	149	173
Contribution	835	874	940	905	938	[illegible]	913	1,020	968	1,027	1,071	1,031	966
Grants	115	93	65	50	51	47	67	29	40	19	23	26	48
Total Cost	1,154	1,177	1,155	1,166	1,191	1,183	1,174	1,203	1,194	1,207	1,217	1,208	1,189
$1,501-2,000													
Net Price	536	556	494	508	554	419	510	495	427	403	326	399	460
Contribution	792	896	1,012	1,044	1,082	1,192	967	1,138	1,222	1,293	1,424	1,283	1,151
Grants	485	320	249	242	138	188	241	148	114	93	57	99	175
Total Cost	1,814	1,773	1,756	1,794	1,775	1,799	1,782	1,779	1,764	1,789	1,808	1,789	1,786
$2,001-2,500													
Net Price	724	888	826	820	706	730	778	684	807	635	543	639	712
Contribution	744	778	962	1,046	1,266	1,214	1,041	1,371	1,314	1,462	1,616	1,478	1,253
Grants	777	600	472	390	277	325	435	210	144	174	118	152	299
Total Cost	2,245	2,268	2,260	2,256	2,250	2,271	2,256	2,267	2,266	2,272	2,277	2,270	2,269
$2,501-3,000													
Net Price	990	954	1,040	885	925	978	957	808	819	853	620	739	847
Contribution	788	1,047	1,079	1,303	1,320	1,413	1,204	1,567	1,660	1,666	2,079	1,823	1,511
Grants	1,012	757	651	564	498	398	604	407	345	240	115	240	422
Total Cost	2,791	2,760	2,761	2,753	2,744	2,791	2,767	2,783	2,825	2,760	2,815	2,802	2,782
$3,001-4,000													
Net Price	1,142	1,106	1,146	1,420	1,351	1,167	1,231	1,150	1,210	1,006	552	807	989
Contribution	810	765	1,344	1,206	1,482	1,708	1,277	1,709	1,851	2,151	2,725	2,334	1,708
Grants	1,478	1,586	966	832	635	588	948	640	442	302	275	363	575
Total Cost	3,443	3,458	3,451	3,468	3,469	3,463	3,457	3,499	3,504	3,501	3,554	3,528	3,273
$4,001-9,900													
Net Price	1,798	2,010	1,830	1,488	1,913	1,798	1,813	1,424	1,739	1,123	765	980	1,237
Contribution	1,231	1,142	2,271	1,744	1,477	1,875	1,663	2,336	2,117	3,165	4,156	3,603	3,011
Grants	2,016	2,194	1,094	1,631	1,764	952	1,563	1,068	1,127	671	239	482	814
Total Cost	5,036	5,347	5,196	4,865	5,155	4,626	5,040	4,829	4,984	4,960	5,162	5,066	5,063
All Costs													
Net Price	611	701	689	683	709	645	680	608	689	597	472	599	620
Contribution	812	882	1,109	1,096	1,176	1,257	1,084	1,344	1,374	1,643	2,176	1,774	1,428
Grants	620	606	427	400	346	290	429	277	239	204	135	194	311
Total Cost	2,044	2,189	2,227	2,179	2,233	2,193	2,192	2,231	2,303	2,445	2,784	2,528	2,360

Source: National Longitudinal Survey of the High School Class of 1972.

be seen by comparing the net prices paid by students in a particular income/expense category (Columns 1-6) to their weighted means (Column 7).[2/]

Remembering that net price equals expenses minus the sum of family contributions and grant aid, the reason for consistency of net price is obvious--family contributions are directly related to family income and grant aid is inversely related to income. These relations generally hold for all expense levels.

While net prices tend to be equalized, given equal expenses for students from families in the less-than-$12,000 income group, there are still substantial differences between the lower (less-than-$12,000) and higher ($12,000-or-greater) income groups. These differences can be easily observed by comparing the net prices in Column 7 with those in Column 12. As can be seen, the differences are substantial at the higher expense levels. The decline in net price that occurs within the $12,000-or-greater income level (averaging 22 percent) and between the less-than-$12,000 and the $12,000-or-greater income level (averaging 41 percent) is principally a result of the fact that the rise in family contribution with income is not offset by a corresponding rise in grant aid at the lower income levels.

It can also be seen from Table 8 that family preferences are also at work. Given the same income levels, it is noted that the family contribution increases as students attend higher cost institutions. While not identified as such, students in institutions beyond the $2,000 to $2,500 cost range, by and large, attend private institutions. Within the income groups, students attending higher cost institutions have higher family contributions, as well as increased grant levels, the total of which was not great enough to offset the increase in total costs. Thus, the net price students ended up having to pay increased as total costs rose. Clearly both student and family placed a higher value on the educational offerings of these institutions and were willing to sacrifice past, current, or future expenditures to meet these increased costs. This trend was consistent over all income groups. However, as enrollment data indicate, smaller relative numbers of students and/or families have been able to meet the costs of private education in recent years.

2/ The same general results occurred when the analysis was repeated using the UCLA/CIRP Survey of Freshmen for the Fall of 1975. This information will be available in the FY 1976 Annual Evaluation Report of the Office of Education.

Thus, in spite of the fact that substantial differences persist between net prices at higher and lower family income levels and among higher and lower cost institutions, it is nonetheless apparent from these data that grant aid programs available for the 1973-74 academic year have been reasonably successful in equalizing net price to students currently enrolled regardless of income up to the income level of $12,000 in schools of similar costs. It is also true that grants (and the family contribution) are a function of costs as they increase with student costs although decreasing with income.

It should again be pointed out that these data are for young people who actually chose to enter postsecondary education. Therefore, we cannot say with any degree of certainty that the net prices faced by all potential postsecondary education entrants were as close to being equalized as these data suggest. Those who chose not to attend may have so decided because they found net prices markedly higher than those who decided to attend.

The data in Table 8 on the consistency of net price across income categories also suggest that factors other than financial constraints contribute to differences in postsecondary participation rates among income classes. Thus, given the aid programs subsequently available in FY 1975 and FY 1976 to most lower income students, it seems clear that the problem of accessing postsecondary education may not be purely financial, and in fact an argument can be made that nonfinancial barriers may be more important. What the problem is (if, indeed, there is a problem) is a matter of debate.

F. The Relationship of Direct Aid to Persistence in PSE

A question of major importance is: to what extent do students receiving direct aid withdraw, compared to those without aid? Peng and Fetters, in a companion paper with this one (1977), included presence or absence of scholarships and/or loans in their study of persisters vs. withdrawers in two- and four-year colleges, as evidenced by the reports of activity of NLS respondents in the fall of 1974 who were in these kinds of institutions in the fall of 1972. After controlling for other factors such as ability levels and race, they conclude that "the relationships between financial aid and withdrawal were almost negligible; financial aid recipients, even those who were scholarship recipients, were not more persistent than non-recipients."

G. Needs for Further Study

The descriptive analyses presented here only skim the surface for useful analyses with the NLS data base on the effect of aid on PSE entry and

persistence. The data show that for enrolled students, the consuming of aid is inversely related to level of family income, and that an impact of aid is the equalization of net price through progressively higher family contributions and progressively lower amounts of aid as family income increases. Of particular importance yet is the question as to the effect of the availability of aid, or the amount of aid potentially available, in the initial decision to go or not to go to college, or to open choice to schools outside a particular cost or net price range.

In closing, note should be taken of two rather extensive studies involving NLS data now underway. One is being conducted by Stephen P. Dresch, of the Institute for Demographic and Economic Studies in New Haven, Connecticut. It is concerned with the consequences of labor market conditions and financial aid availability for educational decisions of young people. Another, by Gregory A. Jackson, of the Harvard Graduate School of Education, attempts to estimate how federal student aid programs might have affected college enrollments. Both efforts have been in part funded by the Office of Education. In both instances, study results are expected to be available by midyear (1977).

Finally, we should note that the data presented in this paper provide estimates on those high school seniors coming available for entry into PSE in the fall of 1972, a very particular point in time with regard to aid available as well as to employment options or perceptions of the value of a college education (which may change over time). The replication of the NLS, an active priority of the National Center for Education Statistics, should provide more definitive data in this regard.

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DISCLAIMER

The opinions expressed in this paper do not necessarily reflect the position or policy of NCES, and no official endorsement by NCES should be inferred.

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DISCUSSANTS' COMMENTS

DR. MARJORIE O. CHANDLER
NATIONAL CENTER FOR EDUCATION STATISTICS

As I think that Jay Davis has nicely pointed out, the NLS seems to epitomize the educational resource role for the Center. From the start, NCES and its sister agencies in HEW have intended that NLS be directed toward the priority policy concerns of HEW, but I want to assure you that the broader research issues have certainly not been neglected. By very fortunate coincidence, there seems to be a very strong correlation (albeit, not a perfect one) between the interests of bureaucrats, legislators, and federal program managers and the concerns of researchers.

This series of four papers which we have just heard does indeed utilize the resources of NLS very thoroughly and does seem to take off from that overriding issue of equalization of educational opportunity. However, if I may quibble a bit, the connection between the big questions and the issues of concern to researchers or to policymakers and the data is not always entirely clear. I hope when these papers are published (as I think they ought to be) that they will focus somewhat more clearly and explicitly on the questions or the issues which they are really designed to illuminate.

Now, in addressing this very broad area of educational opportunity, what are some of the issues that the authors should have considered, or what are some they did consider? It is certainly true that different analysts have different views of what constitutes educational opportunity, but I think there is considerable agreement that it encompasses not only access but also choice and persistence.

Access, the first of these points in the general rubric of educational opportunity, was quite thoroughly tackled by Bailey and Collins in the initial paper on entry by using data on participation rates by race, sex, and SES. But beyond gross participation rates such as we have heard, I think that access also relates to intent or aspiration and to the timing of enrollment--that is. immediate entry out of high school versus deferred entry. The access paper suggested in one table that the difference between 1972 and 1973 was very trivial since only a couple of percent showed deferred entry; but that will be very important to follow since it is an important aspect of access. Also, access generally has something to do with attendance status (full-time or part-time), which probably has been analyzed

but does not seem to be in the tables we have seen here.

Another facet of educational opportunity seems to be choice of institutions and thus their programs. Too often it seems that disadvantaged individuals have, at best, access to the cheapest or the closest institutions. In actuality, their abilities, schools, and interests might be much better served elsewhere. The papers in this symposium tended not to be concerned with what I see as the choice issue, although the findings on institutional selectivity that were brought out in the access paper certainly did bear on this issue.

A third facet of educational opportunity, I think, is persistence, or the opportunity to continue in education as long as one's ability, goals, and motivations persist. Now the papers in this series on transfer and withdrawal certainly had strong bearing on these points, but again I wish the major questions had been joined more explicitly to the data.

In sum, the first general point I want to make about this excellent series of papers concerns tying the analyses and the tabulations a little more closely to important issues which are being addressed. Another general point concerns coordination among these several papers. Take, for example, some of the background variables covered in the paper on transfer; I was glad to see motivational or attitudinal variables such as locus of control, self-concept, and goals included in the analyses of 2 → 4 transfers and the so-called native students. Surprisingly, these variables were not in the analyses of withdrawal--notwithstanding the fact that the subtitle of the paper described withdrawal as a motivational problem; perhaps these data were in tables not shown. Another area of coordination among the papers that I should like to suggest relates to problems in tracking through the various special subsamples and the n's used in the different analyses.

As the introduction to the access paper pointed out, the big payoff in this series of papers is in Davis and Corrallo's work on the impact of financial aid on students. While this paper, in my view, did not deliver quite what its title promised on the impact of aid on entrance, it certainly gave us a lot of things to think about. I'll mention just two points in the interest of giving the other discussants a little time.

The first point is the use of net price. Now I agree that net price is an extremely useful conceptual tool in looking at the equalization effects of

student financial aid. It is certainly gratifying to see that student financial aid seems to have had a good leveling effect, but I fervently hope that the analyses in this study do not render anybody complacent by suggesting that equalization has been attained. Equality is not always easy to measure fiscally or psychologically. Consider, for example, how the student typically makes up the difference represented by a net price. Presumably, large components for making up the difference are either work or tapping of savings, and it is really quite hard to argue that low income groups have equal access to savings or equal opportunity for finding them and using them. Consider also the number of low income students in low cost colleges. The table in this report did not include those n's, but we can readily guess there is very heavy concentration there.

Now the second point about the financial analyses concerns the lack of fulfillment of students' expectations for aid. The authors pointed out that about half of the students who entered postsecondary education with anticipation of aid actually received it, either from federal or other sources. Now the surprising thing to me is that the expectations were assessed very late in the senior year of high school, a very few months before entrance to college, and before the bills were coming due. Despite the short time lapse, the variance between expectation and reality was so great. I think this finding cries for further exploration. Is the lack of fullfillment attributable largely to the unreality of student expectations or lack of knowledge about programs, or is it attributable to the dilatory habits of financial aid officers at institutions, or state and federal agencies, or what?

Finally, I really would like to conclude with the same question that you are all thinking about: what happened to the student who expected aid and didn't get it? That will be an interesting sequel to the papers.

DR. HAROLD DELANEY
NATIONAL INSTITUTE OF EDUCATION

My general comment would be that these four papers seem to contain both good news and bad news. There is a very clear indication that there have been major steps taken towards doing some of those things that are going to equalize educational opportunity, but clearly there are some very, very big differences. I would like to make just a few comments. Some of these--I hope all of these--will be different from those that Marjorie Chandler just made. I would like to make them in the sequence in which the papers were offered.

One of the things that concerns me and one of the things that I think will tend to lead to an unjustifiable complacency is the fact, in the paper on access and entry into postsecondary education, that we look only at the percentage of high school graduates who actually entered. For minoriy students, this is a very deceiving figure because the dropout rate is exceedingly high among high school students. If students (minority students included) persist through graduation from high school, they tend to enter college at the same rate. That factor needs to be taken into account. Shown in the tables on the entrance into postsecondary educational institutions was the fact that the percentages of white students who enter the medium range of selectivity among the postsecondary institutions range from about two to six times the percentages of minority students. Now the issue that I would raise is that there is a whole batch of institutions that have been "referred," suggesting that they really have rather respectable programs. This is a fertile field for equalizing educational opportunity by increasing the concerns of these institutions with admitting and accepting minority students. As the data show, there is a very, very high percentage of minority students with high ability still entering institutions that fall into the low selectivity group.

Another point that I would like to make here concerns the paper on withdrawal. It gave some very interesting data that tended to clarify in my mind some very troublesome questions about what was happening to students. But we don't quite know the full story of persistence by minority students through the acquisition-of-degree stage. Presumably, further data and years will help us understand. I was concerned, however, with some of the interpretations that were suggested as potential explanations for the way data

fell out. For example, the paper suggests that the explanation for withdrawal can almost always be internalized in terms of the students' personal motivations. There were some statements made, for example, where the blame was placed either on the high school counseling or on the high school curriculum, but in other cases the blame was placed pretty much by saying that the student can make it if the student wants to. Now what that does not do is address what the colleges might be doing in terms of dealing with the motivations of students or about what impacts colleges may be having. We do know--and I think the data themselves in these papers will demonstrate--that students who have at the beginning been fairly low in educational aspirations apparently do change considerably, because the correlation between their level of educational aspiration and their persistence was of some significance, but it was not high. There must be a large number of students who go in with relatively low educational aspirations but do change. It would, therefore, seem to me that we've got to look a little more carefully at what the institution does to the students, rather than simply saying that if students want to (and they have the ability) they can persist.

It would have been helpful, since so much emphasis was on the classification of the whole cadre of postsecondary institutions by their degree of selectivity, if some indications of the withdrawal patterns had been studied in that light. I was not able to deduce to what extent there were variations in the rates of withdrawal from various kinds of institutions. To some degree, that was attended to by the fact that the two-year institutions were compared to four-year institutions, but remember that selectivity was utilized, I think, principally to classify the four-year colleges.

The term "financial stress" was used in Jay's [Davis] presentation. I'm not sure that I fully understand that; I thought I did when I first read the paper, but as I listened to him further, it was not very clear to me. Even though there is an apparently clear equalization of the so-called net price, as Marjorie [Chandler] has pointed out there is a question of the degree to which it remains a differentiated stress to people depending on their economic background and their additional financial resources. I am very much in agreement with Marjorie that there is a tendency for us to see that kind of bare data without taking into account that there are some

other factors that really will give us a slightly different interpretation of the degree to which equalization has occurred.

Two comments I want to make about what happens to those youngsters who had expectations but did not get financial assistance. I certainly think those of us who have had to work with this problem know that one of the complications is the complexity of all the various forms that students have to file to get the various kinds of financial assistance. I would be helpful if the States could agree about generating a single common application form for all financial assistance. You know that this physical activity tends to be a significant barrier.

In talking about the students who transfer; I did not see the relationship among the grades of the two-year college students who transferred to four-year institutions. There was some comment that those who transfered from two-year to four-year institutions tended to have higher college grades than those who remained, but I did not find out how the college grades of those transferred from two-year to four-year institutions compared with those who transferred from four-year to four-year institutions.

DR. ROBERT C. NICHOLS
STATE UNIVERSITY OF NEW YORK, BUFFALO

Since I don't have very much time, I will skip my own remarks and summarize my three main points. The first one was that, as the only non-representative of the government or RTI, it seemed appropriate to compliment NCES for having the courage to start such a great study and RTI for doing such a tremendous job of conducting the study and providing a great national resource.

The next point had to do with methodology. It is interesting that all four of these papers essentially had the same methodological problem, and yet they used four very distinct methodologies. I didn't have any quarrel with any of the four approaches. They were quite different, and they gave different kinds of information. I thought that it would be interesting, or very valuable as a matter of fact, in dealing with problems that are of such great policy importance to apply all four methods to all four papers. I was even going to suggest that they apply some additional methods that they hadn't yet thought of. When the data are as good as or as valuable as these and the problems as important as these, it is nice to have the data displayed in a number of different ways. Different displays give you different perspectives, and we would like to see path coefficients and components of variance as well as percentages and all these things. The basic methodological problem is that they all have a criterion, whether it be dropout, college entry, receiving financial aid, or transfer, and a bunch of predictors. The same methodologies would be appropriate for all four of those.

The third point has to do with substantive finding, particularly in the Bailey paper, that we have made a great deal of progress in equality of access to higher education. The two government discussants' comments about this, which imply that there may still be some little problems, reminded me of Marie Eldridge's [Administrator, NCES] talk yesterday. She was saying something to the effect that one of the great problems of the government is that it isn't able to stop doing anything. It seems to me that we might, on the basis of these data, declare the problem of equality of access to higher education solved as a major policy issue and problem. The policymakers should be very pleased to see the thing having moved in the direction that they have been trying to make it move. I call your attention to Sam Peng's

recent paper in the Educational Researcher, in which he compared the NLS data with Project Talent data of ten years previous. Great changes have taken place in equality of access to higher education for races, for sexes, and for socioeconomic groups. Peng pointed out that a side-effect of this government policy of trying to promote equality of access may be that the correlation between ability and college entry decreased substantially. So now we see in the Bailey paper that only about one-half of the top 25 percent in ability enter a four-year college. Of the lower socioeconomic group, only about 40 percent of the top quarter in ability enter a four-year college. That is considerably less than it was in 1961, when Project Talent collected similar data. We used to have a term "talent loss," and one wondered if we were losing 50 percent of our best people. What happens to these people who don't go to college? Fortunately, NLS has the data, and I hope the policymakers look at it.

SALVATORE B. CORRALLO
U.S. OFFICE OF EDUCATION

I would like to respond to what seems to be an overriding concern in the comments, that is, that equalization of net price implies equal educational opportunity has been achieved. In the original draft I used the term equalization of financial barriers in lieu of equalization of net price and somebody suggested that is not what you're trying to do; you're trying to equalize opportunity. In reality until you have a zero price scale you have a financial barrier for some students. We think using the term net price can be an effective way of evaluating the overall impact of our grant programs, unfortunately some people may read more into it than we meant it to mean. To us it means the current student financial aid distribution process, at least in a very general sense, is functioning in a rather even manner. I would like to point out that later research (for the freshman class of 1975) from another data base corroborates the earlier findings. Clearly, more needs to be done to overcome the barriers, both financial and non-financial, to equal educational opportunity. We noted this in the paper.